Masimo Corporation

RAD7CA

Report #: MASI0095.1

Report Prepared By Northwest EMC Inc.

NORTHWEST EMC – (888) 364-2378 – www.nwemc.com

California – Minnesota – Oregon – New York – Washington

22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

Certificate of Test

Last Date of Test: April 27, 2012
Masimo Corporation
Model: RAD7CA

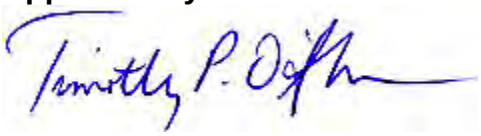
Emissions

Test Description	Specification	Test Method	Pass/Fail
Emission Bandwidth	FCC 15.407:2012	ANSI C63.10:2009	**Pass**
Peak Transmit Power	FCC 15.407:2012	ANSI C63.10:2009	**Pass**
Peak Power Spectral Density	FCC 15.407:2012	ANSI C63.10:2009	**Pass**
Peak Excursion	FCC 15.407:2012	ANSI C63.10:2009	**Pass**
Frequency Stability	FCC 15.407:2012	ANSI C63.10:2009	**Pass**
Spurious Radiated Emissions	FCC 15.407:2012	ANSI C63.10:2009	**Pass**
AC Powerline Conducted Emissions	FCC 15.407:2012	ANSI C63.10:2009	**Pass**

Deviations From Test Standards

None

Approved By:



Tim O'Shea, Operations Manager

NVLAP Lab Code: 200676-0

Test Facility

The measurement facility used to collect the data is located at:

Northwest EMC, Inc.
41 Tesla Ave.
Irvine, CA 92618

Phone: (503) 844-4066 Fax: 844-3826

This site has been fully described in a report filed with and accepted by the FCC (Federal Communications Commission) and Industry Canada (Site filing #2834B-1).

Revision History

Revision Number	Description	Date	Page Number
00	None		

United States

FCC - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

A2LA - Accredited by A2LA to ISO / IEC Guide 65 as a product certifier. This allows Northwest EMC to certify transmitters to FCC and IC specifications.

NVLAP - Each laboratory is accredited by NVLAP to ISO 17025. The scope includes radio, ITE, and medical standards from around the world. See: http://www.nwemc.com/accreditations/

Canada

IC - Recognized by Industry Canada as a Certification Body (CB). Certification chambers and Open Area Test Sites are filed with IC.

European Union

European Commission – Validated by the European Commission as a Conformity Assessment Body (CAB) under the EMC directive and as a Notified Body under the R&TTE Directive.

Australia/New Zealand

ACMA - Recognized by ACMA as a CAB for the acceptance of test data.

Korea

KCC / RRA - Recognized by KCC's RRA as a CAB for the acceptance of test data.

Japan

VCCI - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

Taiwan

BSMI – Recognized by BSMI as a CAB for the acceptance of test data.

NCC - Recognized by NCC as a CAB for the acceptance of test data.

Singapore

IDA – Recognized by IDA as a CAB for the acceptance of test data.

Hong Kong

OFTA – Recognized by OFTA as a CAB for the acceptance of test data.

Vietnam

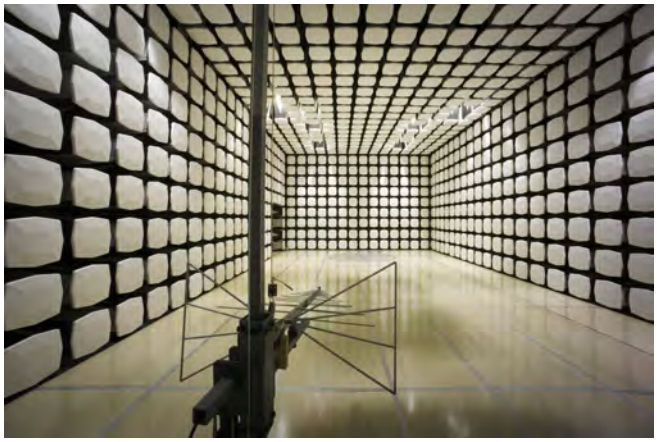
MIC – Recognized by MIC as a CAB for the acceptance of test data.

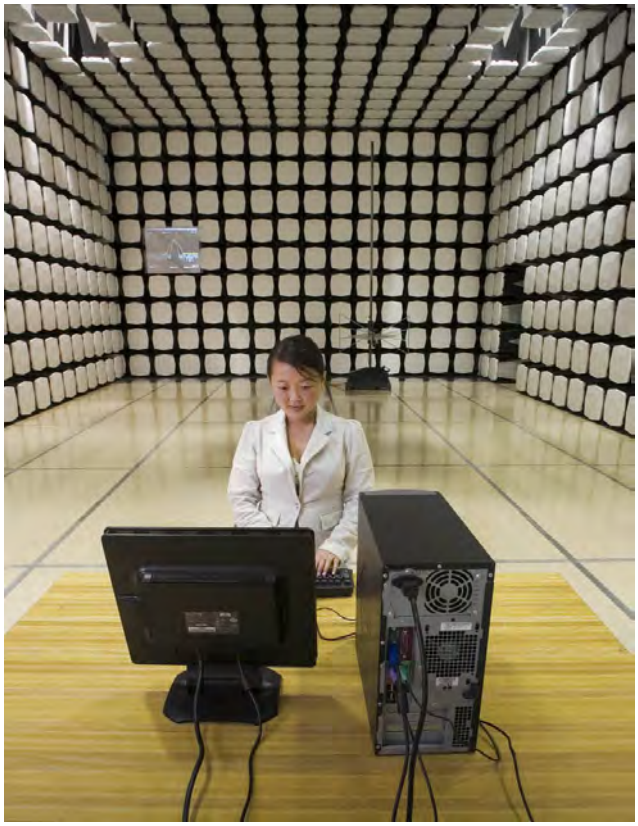
Russia

GOST – Accredited by Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC to perform EMC and Hygienic testing for Information Technology products to GOST standards**.**

Locations

Oregon	California	New York	Minnesota	Washington
Labs EV01-EV12 22975 NW Evergreen Pkwy, #400 Hillsboro, OR 97124 (503) 844-4066	Labs OC01-OC13 41 Tesla Irvine, CA 92618 (949) 861-8918	Labs WA01-WA04 4939 Jordan Rd. Elbridge, NY 13060 (315) 685-0796	Labs MN01-MN08 9349 W Broadway Ave. Brooklyn Park, MN 55445 (763) 425-2281	Labs SU01-SU07 14128 339th Ave. SE Sultan, WA 98294 (360) 793-8675
VCCI				
C-1071, R-1025, G-84, C-2687, T-1658, R-2318	R-1943, G-85, C-2766, T-1659, G-548		R-3125, G-86, G-141, C-3464, T-1634	R-871, G-83, C-3265, T-1511
Industry Canada				
2834D-1, 2834D-*2*	2834B-1, 2834B-2, 2834B-3		2834E-1	2834C-1





Product Description

Client and Equipment Under Test (EUT) Information

Company Name:	Masimo Corporation
Address:	40 Parker
City, State, Zip:	Irvine, CA 92618
Test Requested By:	Michael Clark
Model:	RAD7CA
First Date of Test:	April 18, 2012
Last Date of Test:	April 27, 2012
Receipt Date of Samples:	April 18, 2012
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test):
802.11a/b/g radio

Testing Objective:
Seeking to demonstrate compliance under FCC 15.407 for operation in the 5.2 GHz band only

Configurations

Configuration 1 MASI0095

Software/Firmware Running during test	
Description	**Version**
Tera Term	4.73
(Linux) base	E 0.0.1.6

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Pulse Co-Oximeter	Masimo Corporation	RAD7CA	34996 Rev C

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Remote Laptop	Hewlett Packard	Compaq 6515b	CNU7300W4L

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Cable	No	1.8m	No	RAD7CA	AC Mains
USB Cable	No	1.0m	No	RAD7CA	Remote Laptop
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Configuration 2 MASI0095

Software/Firmware Running during test	
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Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Remote Laptop	Hewlett Packard	Compaq 6515b	CNU7300W4L
Rainbow Patient Sensor	Masimo Corporation	DCI - dc12	9J042

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Cable	No	1.8m	No	RAD7CA	AC Mains
USB Cable	No	1.0m	No	RAD7CA	Remote Laptop
Rainbow Patient Sensor Cable	No	3.5m	No	RAD7CA	Unterminated
RS-232 Cable	No	1.8m	Yes	RAD7CA	Unterminated
DB-15 Cable	No	1.5m	Yes	RAD7CA	Unterminated
SatShare Cable	No	1.0m	Yes	RAD7CA	Unterminated
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Configurations

Configuration 3 MASI0095

Software/Firmware Running during test	
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(Linux) base	E 0.0.1.6

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Rainbow Patient Sensor Cable	No	3.5m	No	RAD7CA	Unterminated
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Modifications

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	4/18/2012	Emission Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
2	4/18/2012	Peak Excursion	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
3	4/18/2012	Frequency Stability	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
4	4/19/2012	AC Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
5	4/20/2012	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
6	4/27/2012	Peak Transmit Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
7	4/27/2012	Peak Power Spectral Density	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

Emission Bandwidth

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Signal Generator	Agilent	E8257D	TGU	2/1/2012	12
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	6/2/2011	12
40 GHz DC block	Fairview Microwave	SD3379	AMI	10/12/2011	12
Spectrum Analyzer	Agilent	E4446A	AAY	1/9/2012	12

MEASUREMENT UNCERTAINTY

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

FCC Public Notice DA 02-2138 was followed. The transmit frequency was set to the lowest, a medium, and the highest channels in each band. The transmit power was set to its default maximum. The lowest, a medium, and the highest data rates were measured if available. A direct connection was made between the RF output of the EUT and a spectrum analyzer. Attenuation and a DC block were used. The reference level offset on the spectrum analyzer was adjusted to compensate for cable loss and the external attenuation used between the RF output and the spectrum analyzer input.

The spectrum analyzer settings were as follows:
- Span = approximately 1.5 to 2 times the emission bandwidth, centered on the transmit channel.
- RBW = Approx. 1% of the emission bandwidth (B). This was an iterative process where an exact match of 1% may not be achieved. The largest value of RBW that came close to 1% of the emission bandwidth was used.
- A peak detector was used.

The marker-delta function was then used to measure 26 dB emission bandwidth.

Emission Bandwidth

EUT:	RAD7CA			**Work Order:**	MASI0095
Serial Number:	34996 Rev C			**Date:**	04/18/12
Customer:	Masimo Corporation			**Temperature:**	22.84 C°C
Attendees:	None			**Humidity:**	38%
Project:	None			**Barometric Pres.:**	1014.4
Tested by:	Mark Baytan	**Power:**	110VAC/60Hz	**Job Site:**	OC07

TEST SPECIFICATIONS	Test Method
FCC 15.407:2012	ANSI C63.10:2009

COMMENTS

Power Setting = 99. Port 1

DEVIATIONS FROM TEST STANDARD

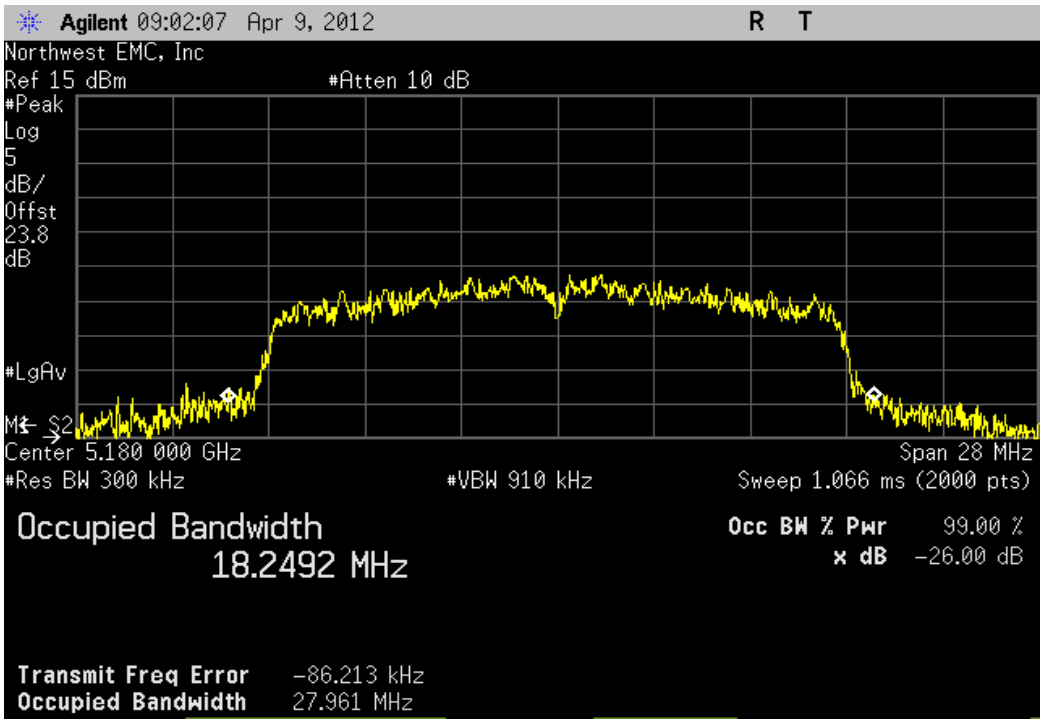
None

Configuration #	1	Signature

		Value	Limit	Result
802.11(a) 6 Mbps				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	18.249 MHz	> 500 kHz	Pass
	Channel 48, High Channel	17.89 MHz	> 500 kHz	Pass
802.11(a) 36 Mbps				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	18.343 MHz	> 500 kHz	Pass
	Channel 48, High Channel	17.937 MHz	> 500 kHz	Pass
802.11(a) 54 Mbps				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	18.405 MHz	> 500 kHz	Pass
	Channel 48, High Channel	17.535 MHz	> 500 kHz	Pass

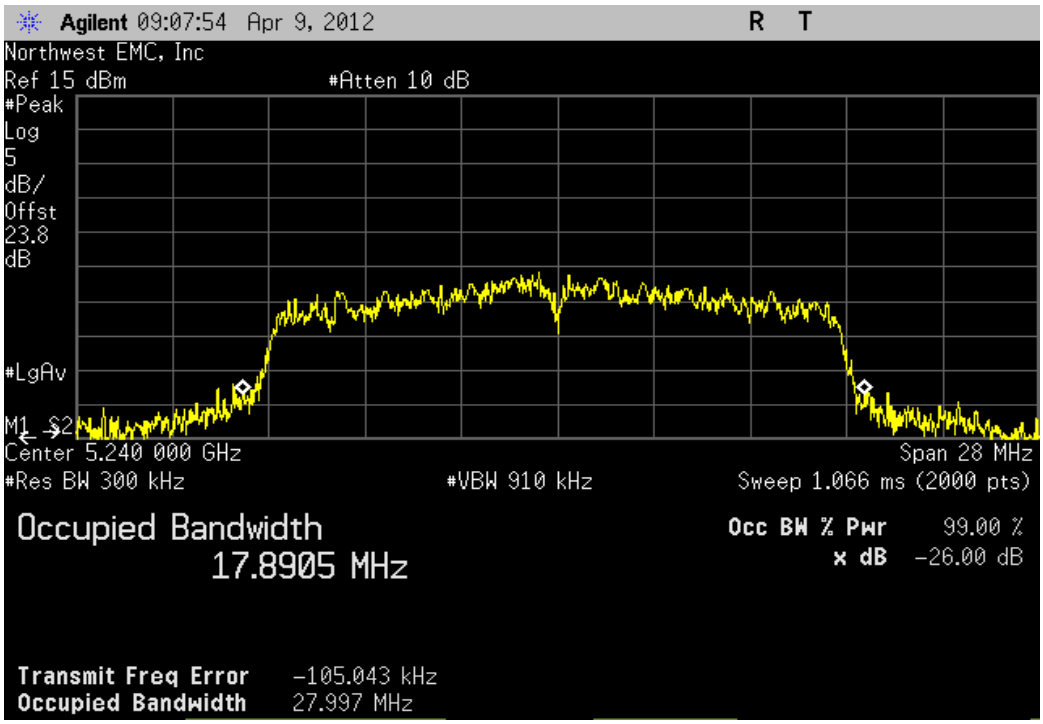
802.11(a) 6 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel

				Value	Limit	Result
				18.249 MHz	> 500 kHz	Pass



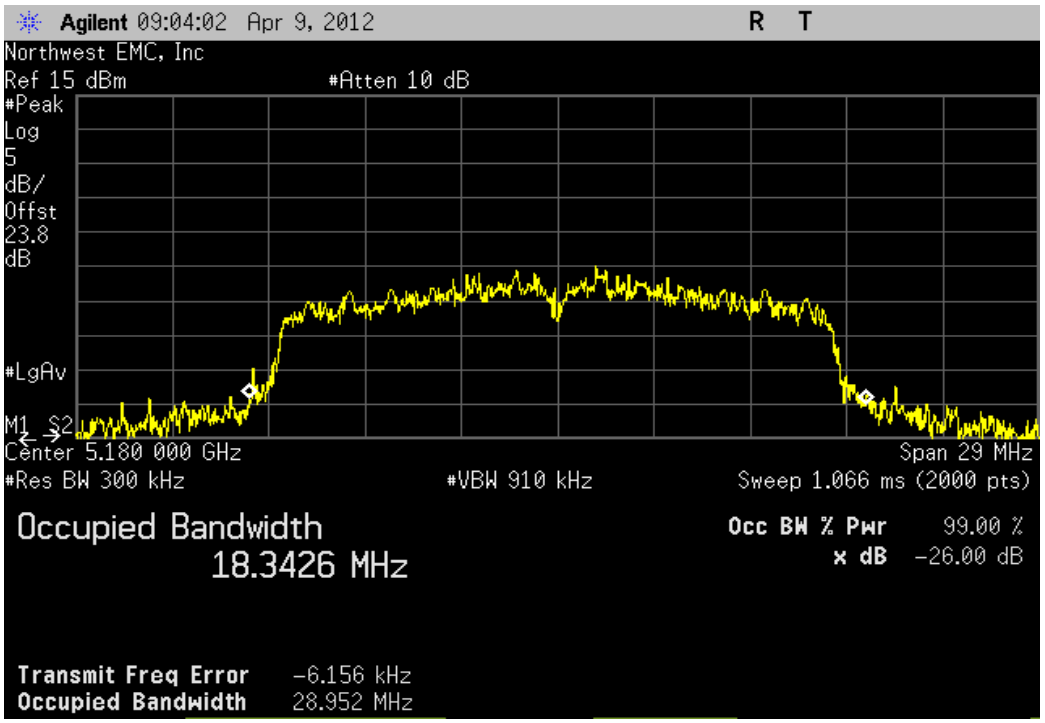
802.11(a) 6 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel

				Value	Limit	Result
				17.89 MHz	> 500 kHz	Pass



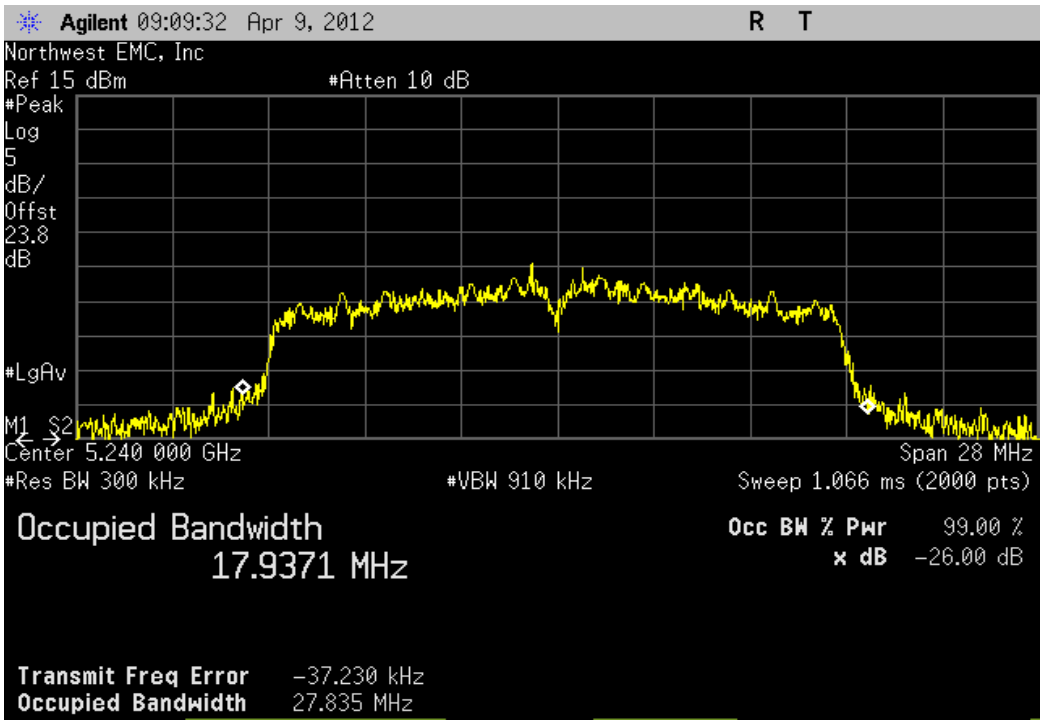
802.11(a) 36 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel

				Value	Limit	Result
				18.343 MHz	> 500 kHz	Pass



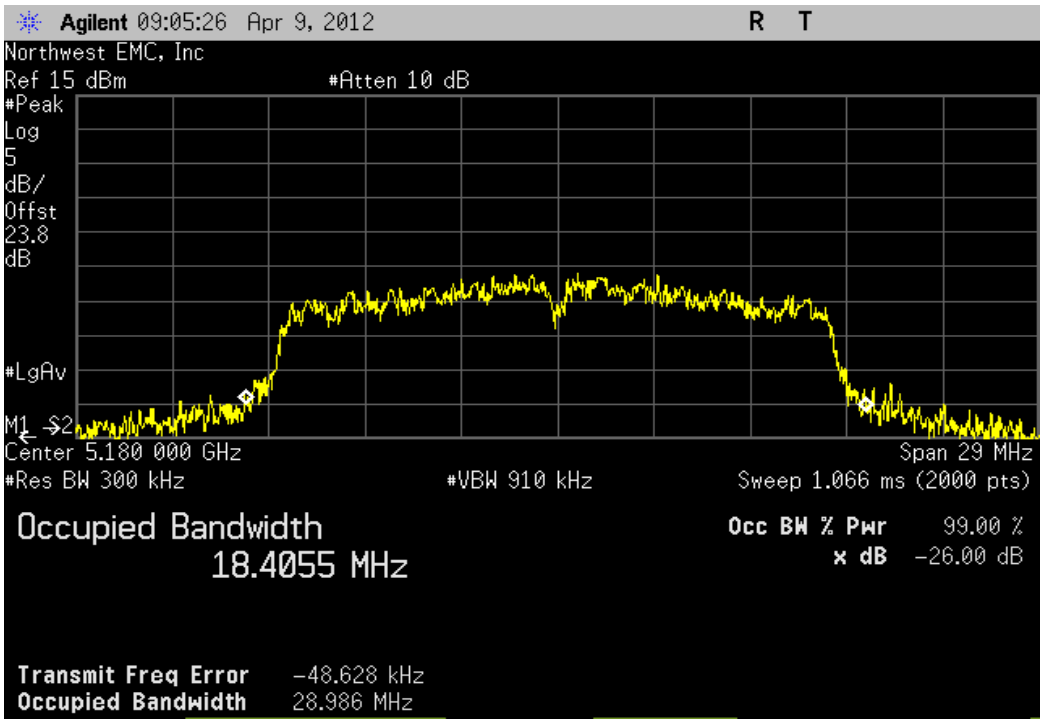
802.11(a) 36 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel

				Value	Limit	Result
				17.937 MHz	> 500 kHz	Pass



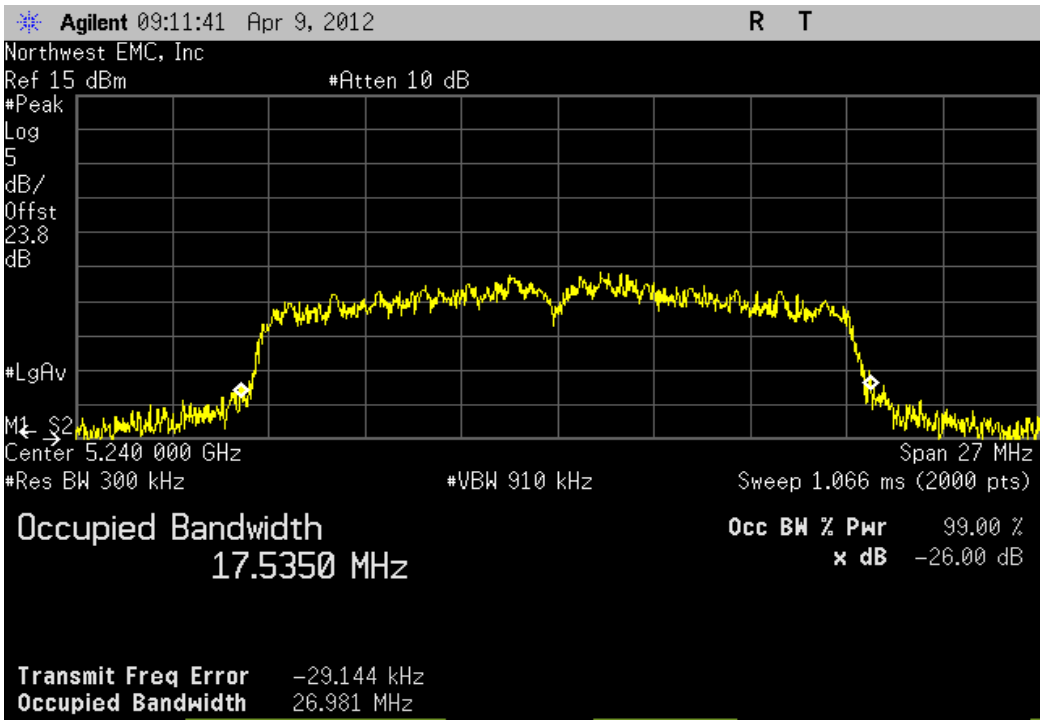
802.11(a) 54 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel

				Value	Limit	Result
				18.405 MHz	> 500 kHz	Pass



802.11(a) 54 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel

				Value	Limit	Result
				17.535 MHz	> 500 kHz	Pass



Peak Transmit Power

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TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Signal Generator	Agilent	E8257D	TGU	2/1/2012	12
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	6/2/2011	12
40 GHz DC block	Fairview Microwave	SD3379	AMI	10/12/2011	12
Spectrum Analyzer	Agilent	E4446A	AAY	1/9/2012	12

MEASUREMENT UNCERTAINTY

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

FCC Public Notice DA 02-2138 was followed. The transmit frequency was set to the mid channel in each band. The transmit power was set to its default maximum. The data rate of 6 Mbps was measured. A direct connection was made between the RF output of the EUT and a spectrum analyzer. Attenuation and a DC block were used. The reference level offset on the spectrum analyzer was adjusted to compensate for cable loss and the external attenuation used between the RF output and the spectrum analyzer input. The amplitude accuracy of the spectrum analyzer was further enhanced by calibrating the setup using the power meter and synthesized signal generator.

Prior to measuring peak transmit power; the emission bandwidth (B) and the transmission pulse duration (T) were measured. Both are required to determine the method of measuring Peak Transmit Power. The method of measuring the emission bandwidth and the associated data are found elsewhere in this test report. The transmission pulse duration (T) was measured using a zero span on the spectrum analyzer to see the pulses in the time domain. The scope photos precede the power measurement data.

Method #1 found in FCC Public Notice DA02-2138 was used because the analyzer sweep time was less than or equal to T.

The spectrum analyzer settings were as follows:

- The span was set to encompass entire emission bandwidth (B), centered on the transmit channel.
- The RBW = 1 MHz, VBW >= 3 MHz
- Peak detector mode because the bin width (span / number of spectral points) > 0.5 RBW.
- Trace average 100 traces in power averaging mode (not video averaging).
- Power was integrated across “B”, by using the channel power function of the analyzer.

Peak Transmit Power

EUT:	RAD7CA			**Work Order:**	MASI0095
Serial Number:	34996 Rev C			**Date:**	04/27/12
Customer:	Masimo Corporation			**Temperature:**	22.84 C°C
Attendees:	None			**Humidity:**	38%
Project:	None			**Barometric Pres.:**	1014.4
Tested by:	Jaemi Suh	**Power:**	110VAC/60Hz	**Job Site:**	OC10

TEST SPECIFICATIONS	Test Method
FCC 15.247:2012	ANSI C63.10:2009

COMMENTS

Power Setting = 99. Port 1

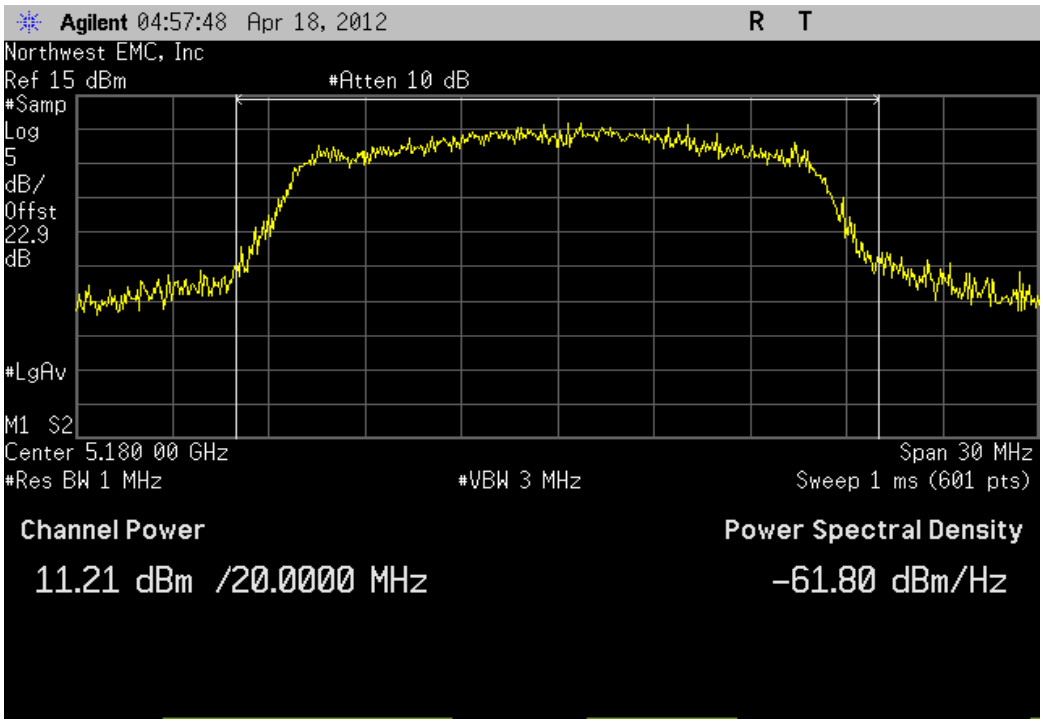
DEVIATIONS FROM TEST STANDARD

Configuration #	1	Signature

		Value	Limit	Result
802.11(a) 6 Mbps				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	11.208 dBm	<30 dBm	Pass
	Channel 48, High Channel	11.768 dBm	<30 dBm	Pass
802.11(a) 36 Mbps				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	11.149 dBm	<30 dBm	Pass
	Channel 48, High Channel	11.798 dBm	<30 dBm	Pass
802.11(a) 54 Mbps				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	11.274 dBm	<30 dBm	Pass
	Channel 48, High Channel	11.794 dBm	<30 dBm	Pass

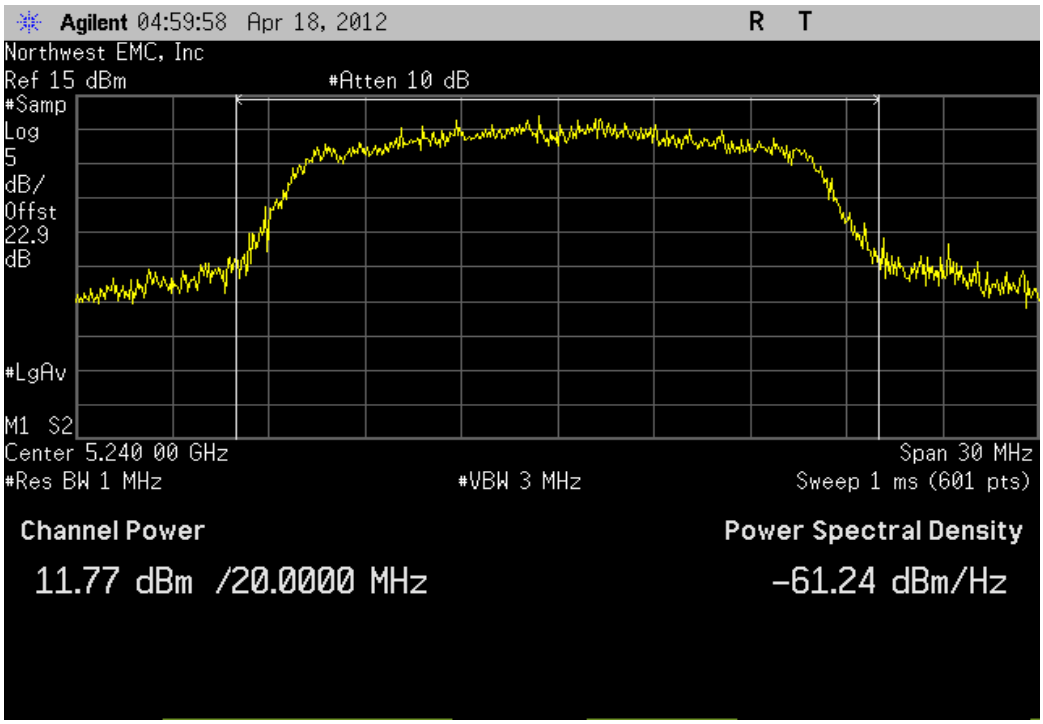
802.11(a) 6 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel

				Value	Limit	Result
				11.208 dBm	<30 dBm	Pass



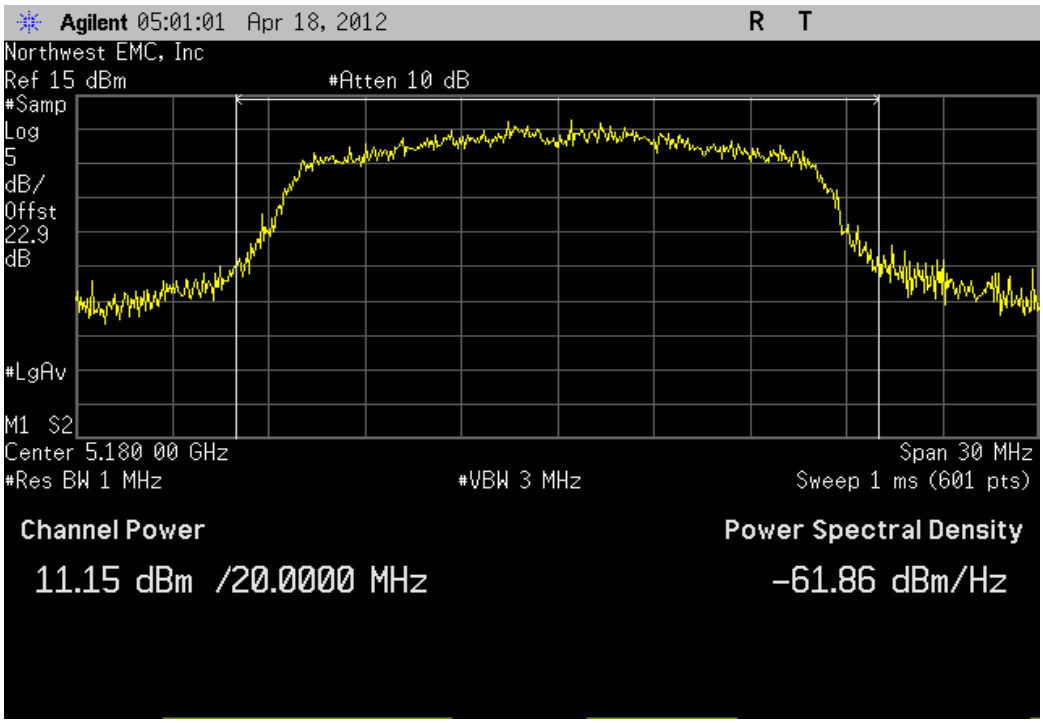
802.11(a) 6 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel

				Value	Limit	Result
				11.768 dBm	<30 dBm	Pass



802.11(a) 36 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel

				Value	Limit	Result
				11.149 dBm	<30 dBm	Pass



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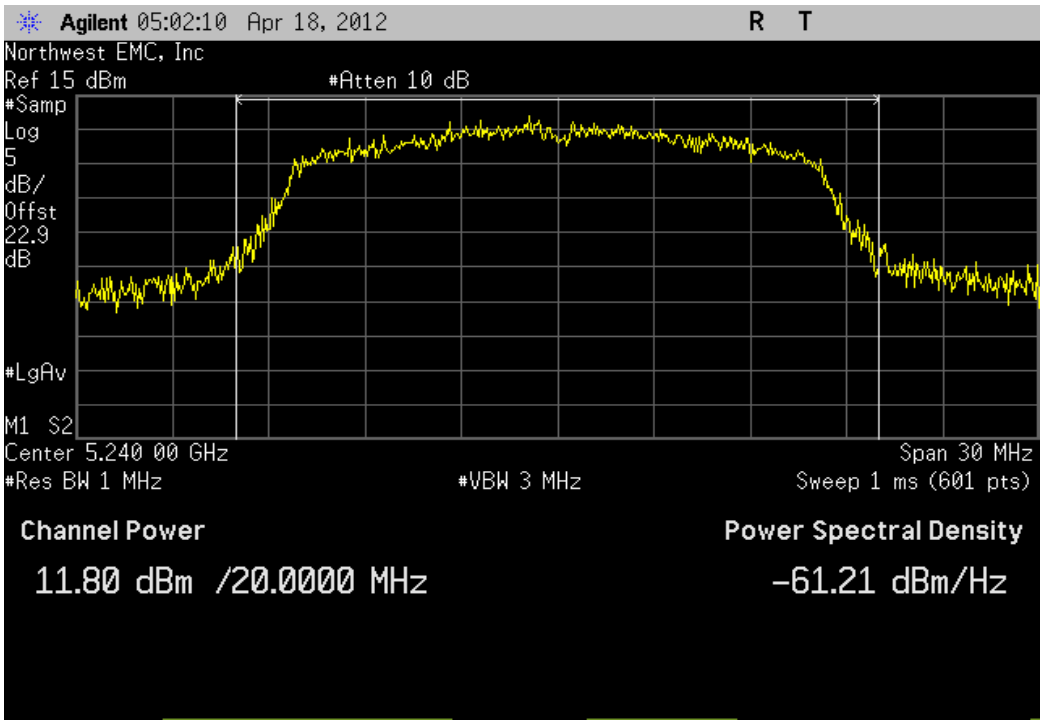
				Value	Limit	Result
				11.798 dBm	<30 dBm	Pass



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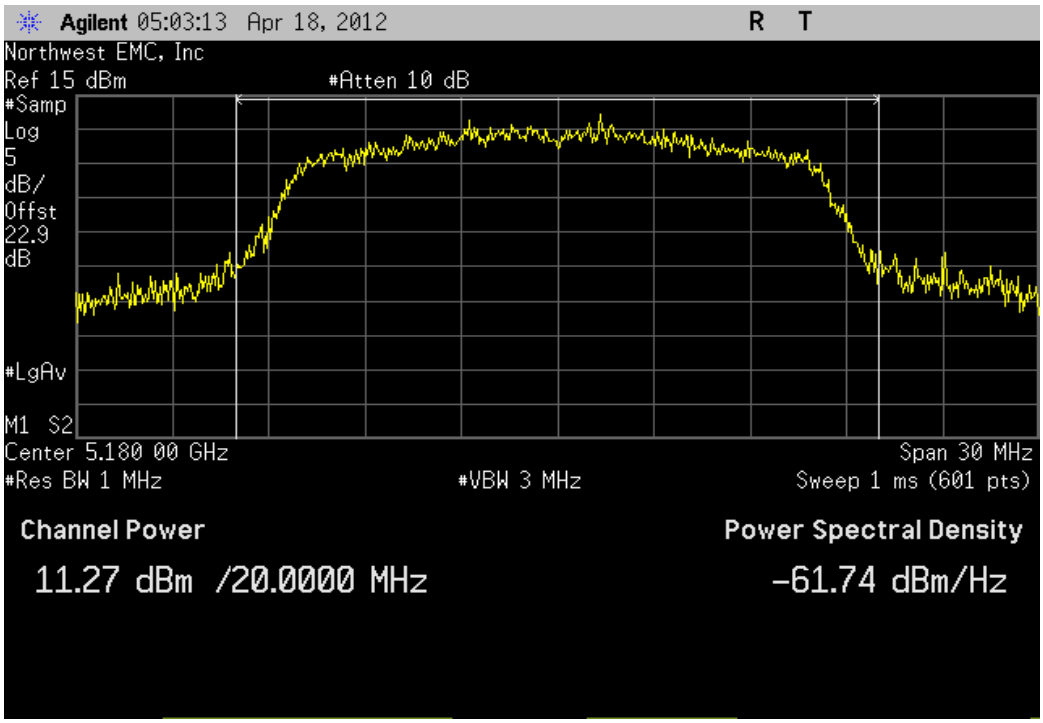
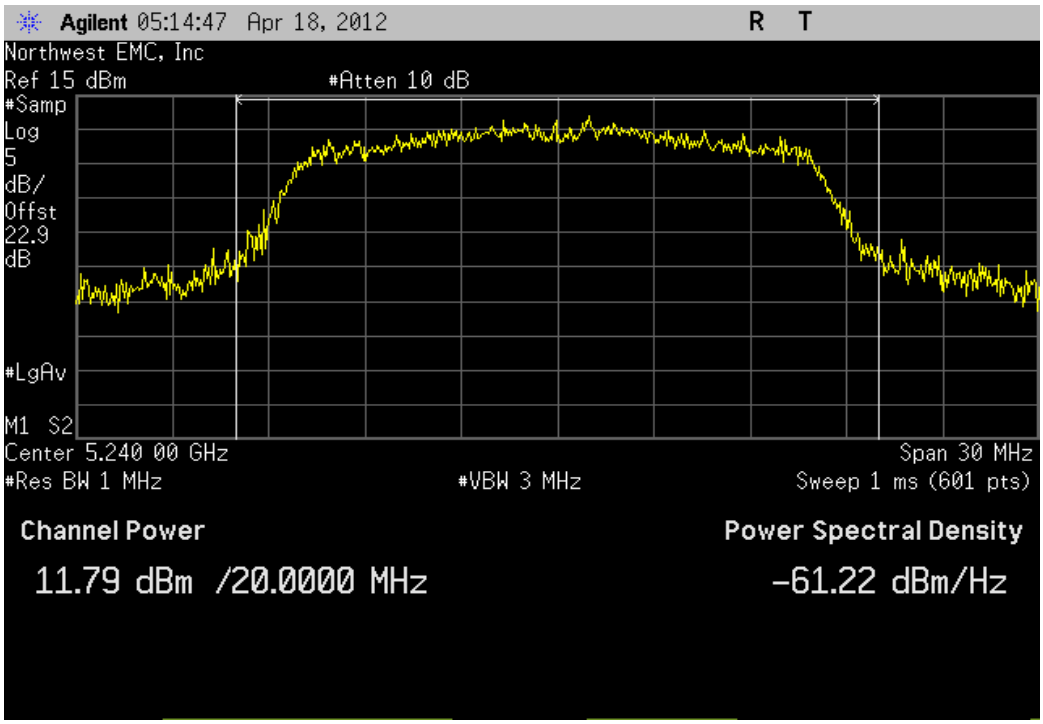
				Value	Limit	Result
				11.274 dBm	<30 dBm	Pass



802.11(a) 54 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel

				Value	Limit	Result
				11.794 dBm	<30 dBm	Pass



Peak Transmit Power

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- Peak detector mode because the bin width (span / number of spectral points) > 0.5 RBW.
- Trace average 100 traces in power averaging mode (not video averaging).
- Power was integrated across “B”, by using the channel power function of the analyzer.

Peak Transmit Power

EUT:	RAD7CA			**Work Order:**	MASI0095
Serial Number:	34996 Rev C			**Date:**	04/27/12
Customer:	Masimo Corporation			**Temperature:**	22.84 C°C
Attendees:	None			**Humidity:**	38%
Project:	None			**Barometric Pres.:**	1014.4
Tested by:	Jaemi Suh	**Power:**	110VAC/60Hz	**Job Site:**	OC10

TEST SPECIFICATIONS	Test Method
FCC 15.407:2012	ANSI C63.10:2009

COMMENTS

Power Setting = 99. Port 2

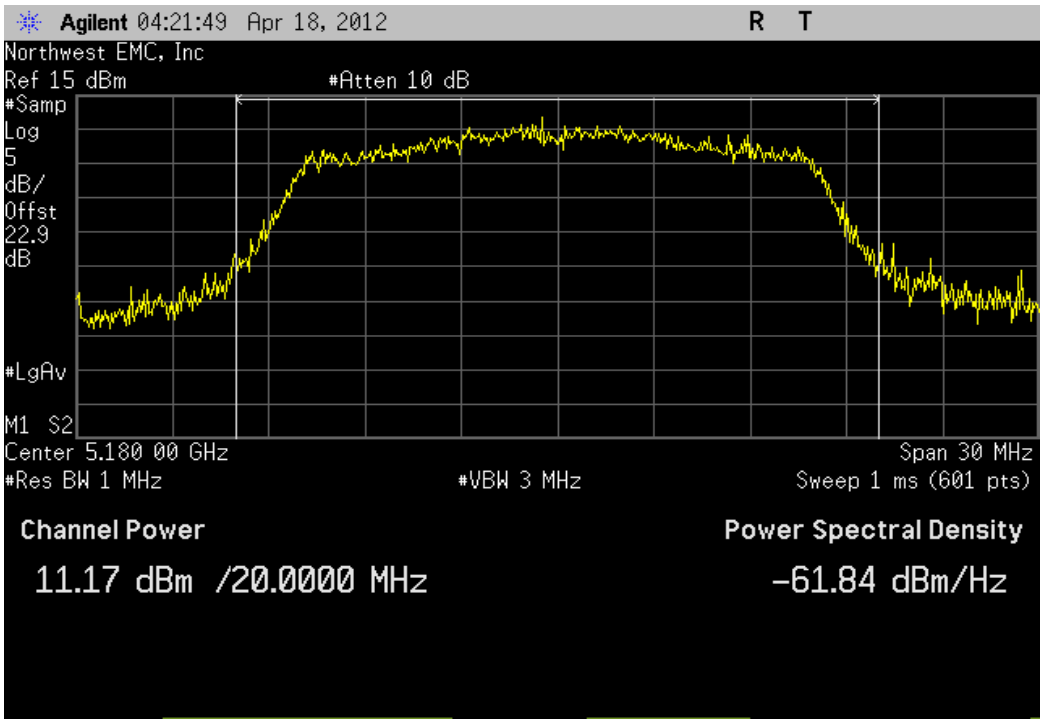
DEVIATIONS FROM TEST STANDARD

Configuration #	1	Signature

		Value	Limit	Result
802.11(a) 6 Mbps				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	11.167 dBm	< 30 dBm	Pass
	Channel 48, High Channel	11.776 dBm	< 30 dBm	Pass
802.11(a) 36 Mbps				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	11.144 dBm	< 30 dBm	Pass
	Channel 48, High Channel	11.709 dBm	< 30 dBm	Pass
802.11(a) 54 Mbps				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	11.093 dBm	< 30 dBm	Pass
	Channel 48, High Channel	11.953 dBm	< 30 dBm	Pass

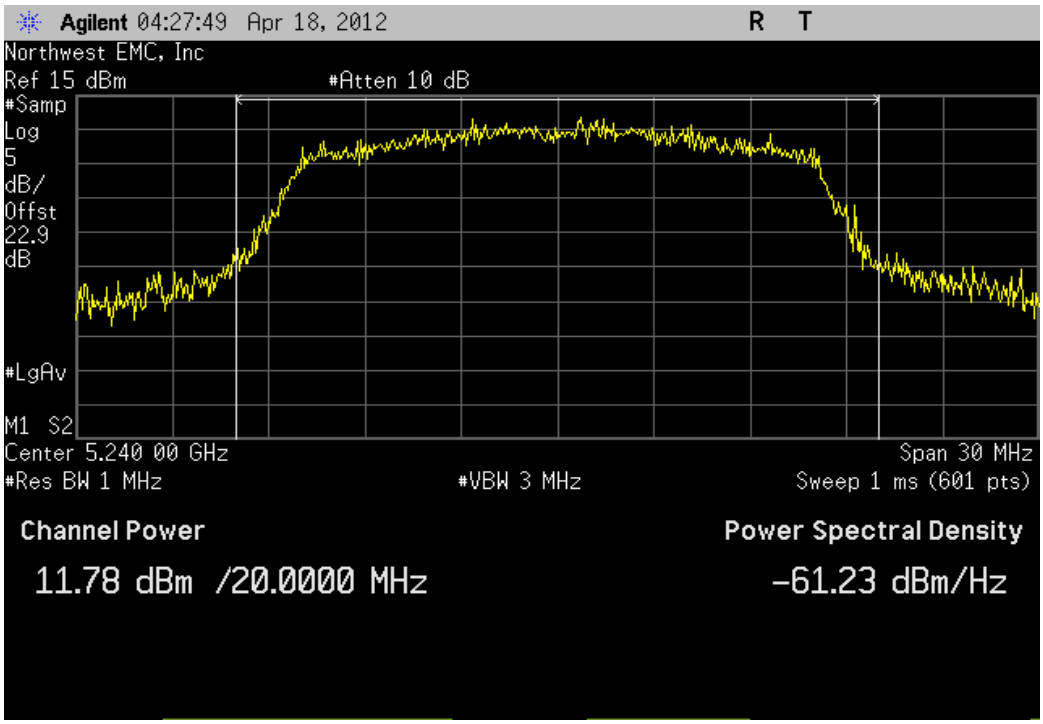
802.11(a) 6 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel

				Value	Limit	Result
				11.167 dBm	< 30 dBm	Pass



802.11(a) 6 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel

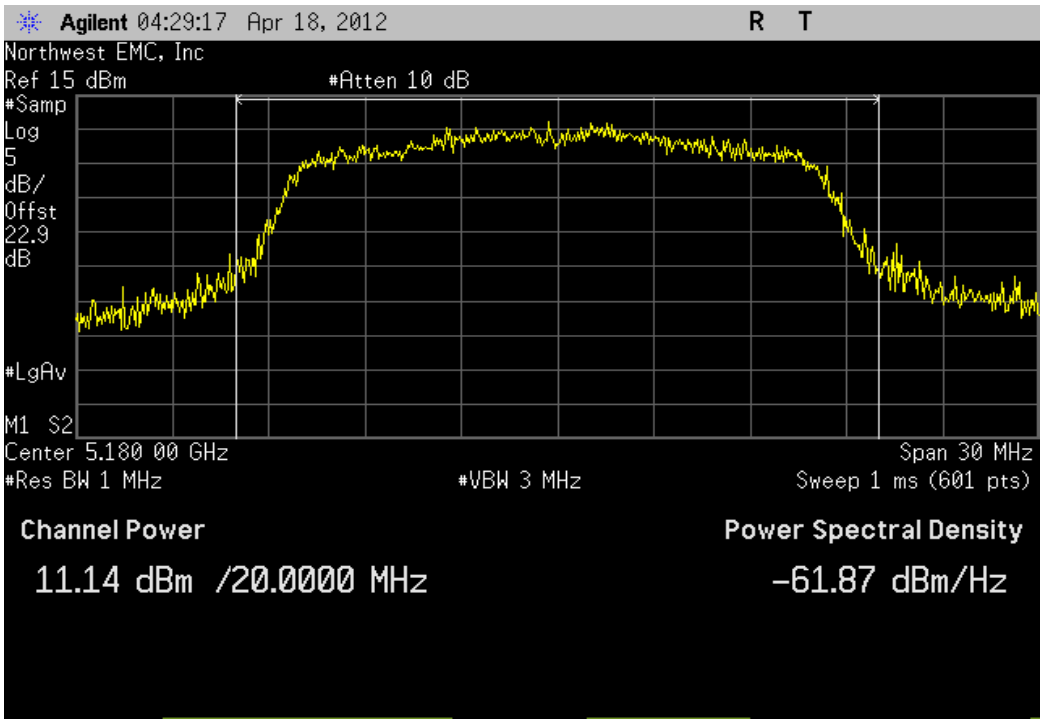
				Value	Limit	Result
				11.776 dBm	< 30 dBm	Pass



Peak Transmit Power

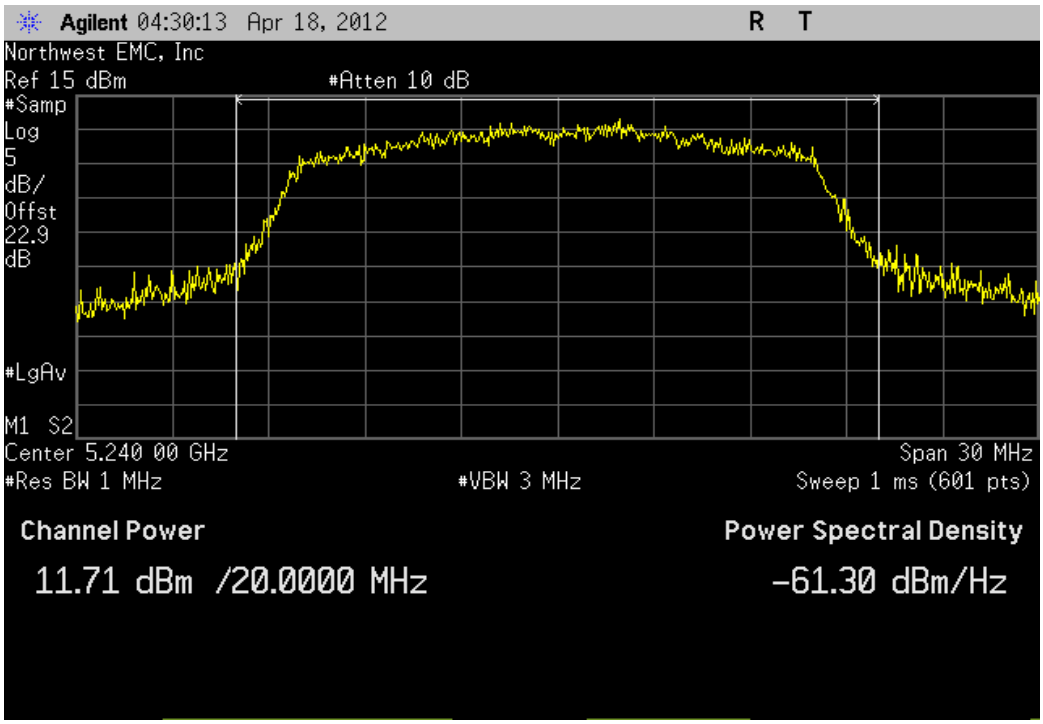
802.11(a) 36 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel

				Value	Limit	Result
				11.144 dBm	< 30 dBm	Pass



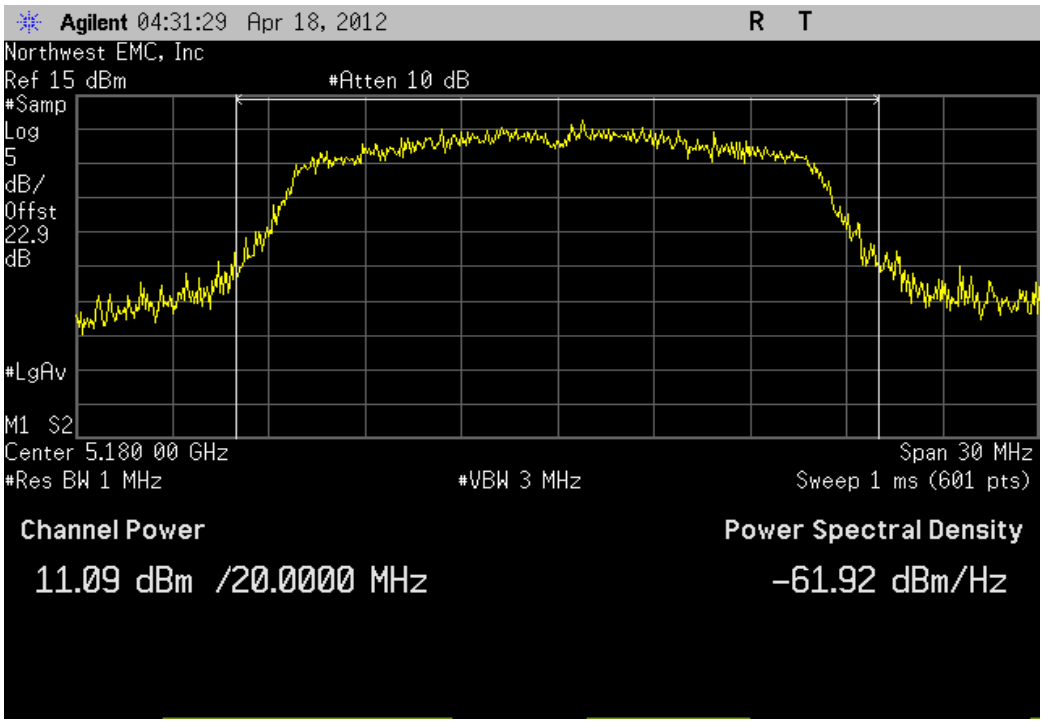
802.11(a) 36 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel

				Value	Limit	Result
				11.709 dBm	< 30 dBm	Pass



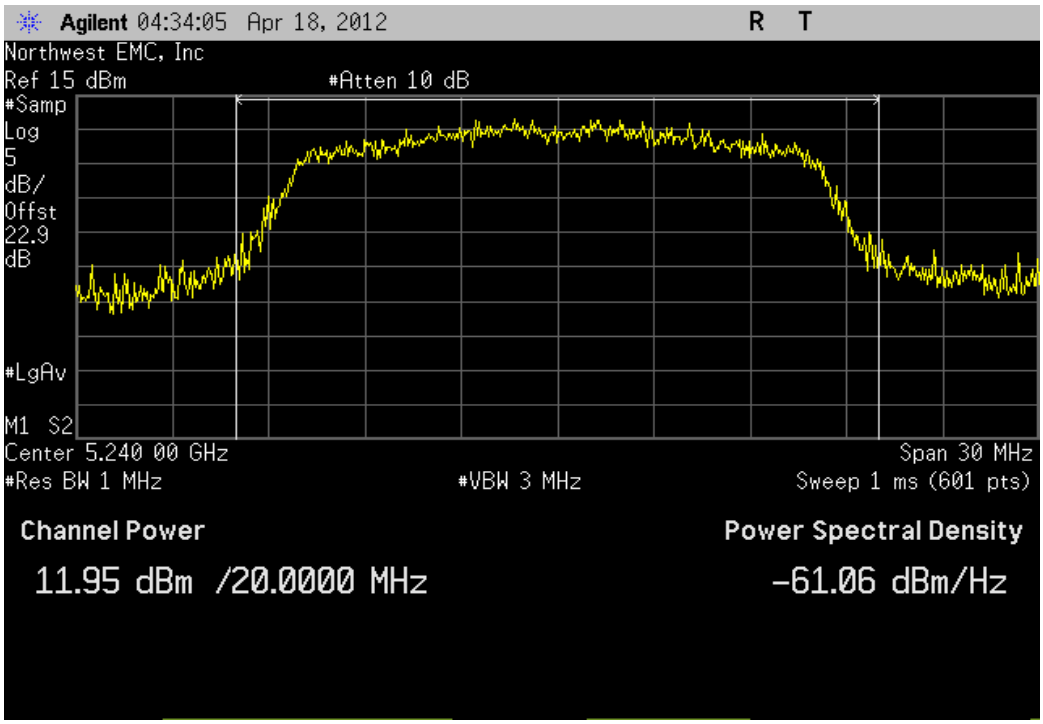
802.11(a) 54 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel

				Value	Limit	Result
				11.093 dBm	< 30 dBm	Pass



802.11(a) 54 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel

				Value	Limit	Result
				11.953 dBm	< 30 dBm	Pass



Peak Power Spectral Density

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Signal Generator	Agilent	E8257D	TGU	2/1/2012	12
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	6/2/2011	12
40 GHz DC block	Fairview Microwave	SD3379	AMI	10/12/2011	12
Spectrum Analyzer	Agilent	E4446A	AAY	1/9/2012	12

MEASUREMENT UNCERTAINTY

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

ANSI C63.10 was followed. The transmit frequency was set to the required channels in each band. The transmit power was set to its default maximum. The lowest data rate was measured as it provided the highest output power. A direct connection was made between the RF output of the EUT and a spectrum analyzer. Attenuation and a DC block were used. The reference level offset on the spectrum analyzer was adjusted to compensate for cable loss and the external attenuation used between the RF output and the spectrum analyzer input. The amplitude accuracy of the spectrum analyzer was further enhanced by calibrating the setup using the power meter and synthesized signal generator.

Prior to measuring peak power spectral density, the transmission pulse duration (T) were measured. The transmission pulse duration and the associated data are found elsewhere in this test report.

Method #1 was used because the analyzer sweep time was greater than the transmission pulse duration.

The spectrum analyzer settings were as follows:

- The span was set to encompass entire emission bandwidth (B), centered on the transmit channel.
- RBW = 1 MHz, VBW >= 3 MHz because the emission bandwidth (B) is greater than 1 MHz
- Peak detector
- The analyzer trace was placed in max hold.

The peak power spectral density (PPSD) was determined to be the highest level found across the emission in any 1 MHz band.

Peak Power Spectral Density

EUT:	RAD7CA			**Work Order:**	MASI0095
Serial Number:	34996 Rev C			**Date:**	04/27/12
Customer:	Masimo Corporation			**Temperature:**	22.84 C°C
Attendees:	None			**Humidity:**	38%
Project:	None			**Barometric Pres.:**	1014.4
Tested by:	Jaemi Suh	**Power:**	110VAC/60Hz	**Job Site:**	OC10

TEST SPECIFICATIONS	Test Method
FCC 15.407:2012	ANSI C63.10:2009

COMMENTS

Power Setting = 99. Port 1

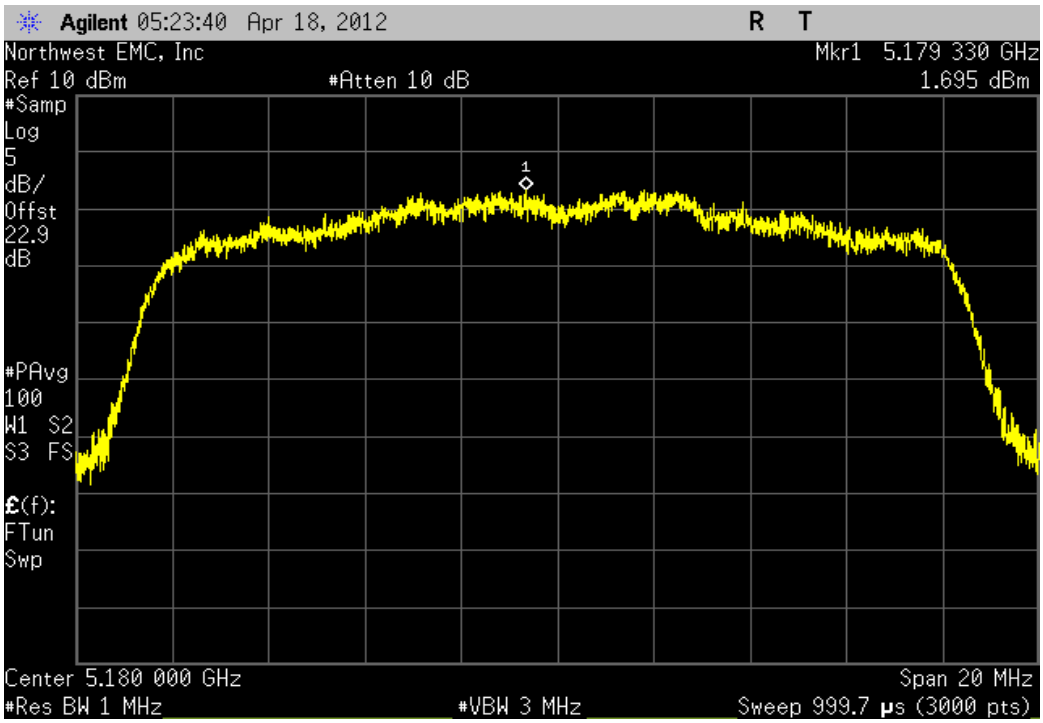
DEVIATIONS FROM TEST STANDARD

Configuration #	1	Signature

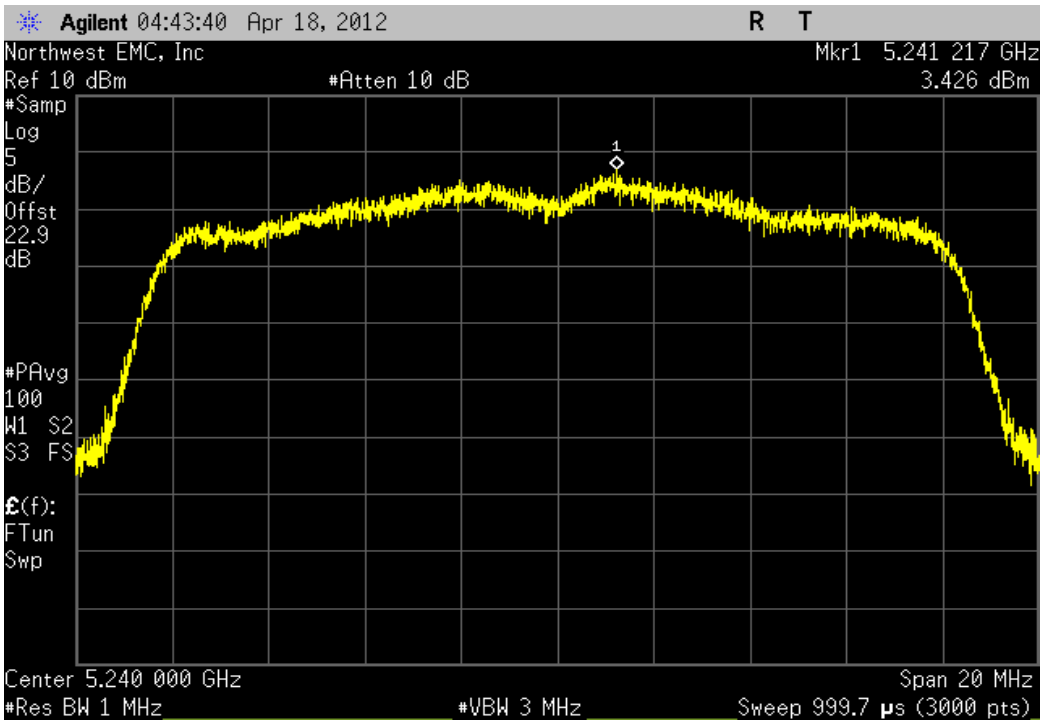
		Value (dBm / MHz)	Limit (dBm / mHz)	Result
802.11(a) 6 Mbps				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	1.695	4	Pass
	Channel 48, High Channel	3.426	4	Pass
802.11(a) 36 Mbps				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	2.437	4	Pass
	Channel 48, High Channel	3.421	4	Pass
802.11(a) 54 Mbps				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	2.406	4	Pass
	Channel 48, High Channel	2.693	4	Pass

Peak Power Spectral Density

802.11(a) 6 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel							
					Value (dBm / MHz)	Limit (dBm / mHz)	Result
					1.695	4	Pass

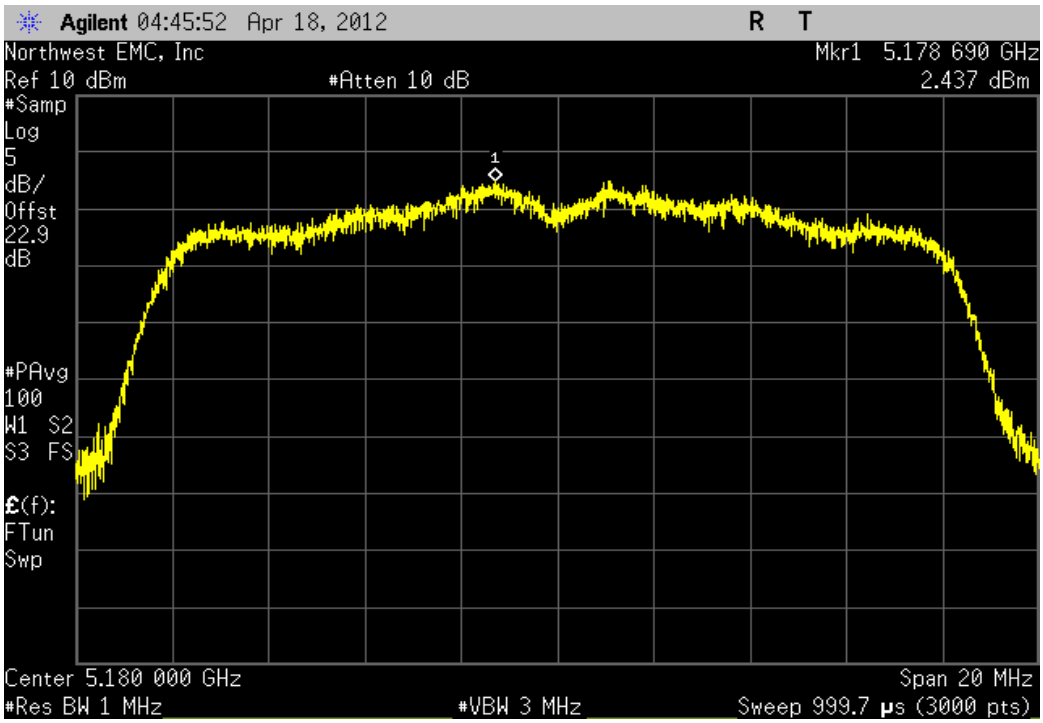


802.11(a) 6 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel							
					Value (dBm / MHz)	Limit (dBm / mHz)	Result
					3.426	4	Pass

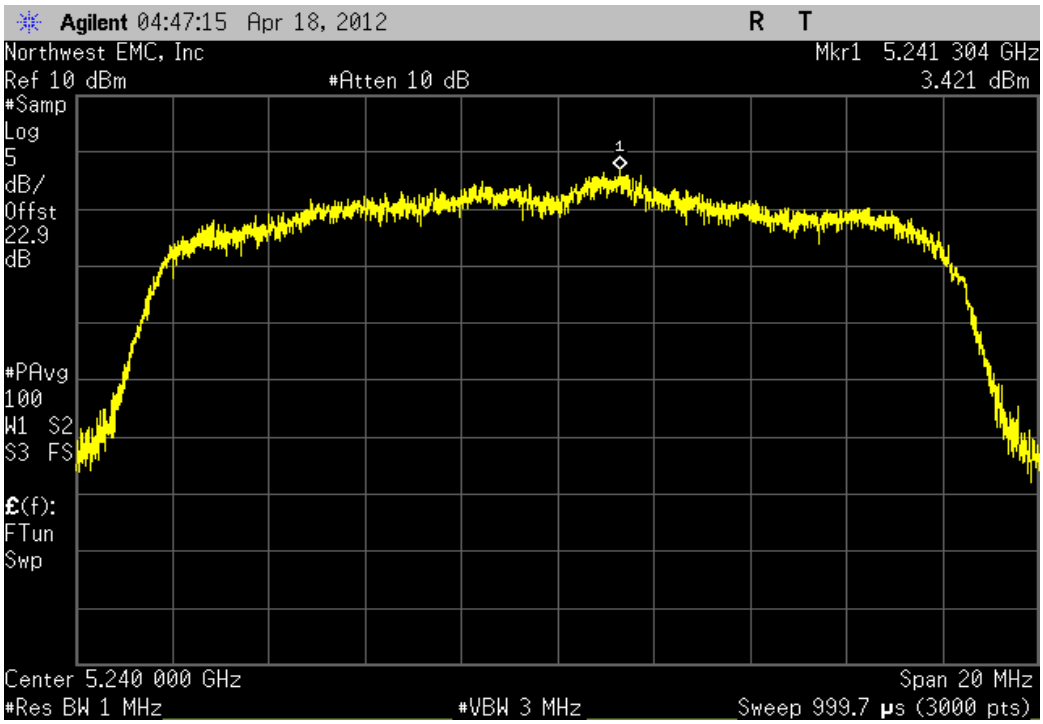


Peak Power Spectral Density

802.11(a) 36 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel						
				Value (dBm / MHz)	Limit (dBm / mHz)	Result
				2.437	4	Pass

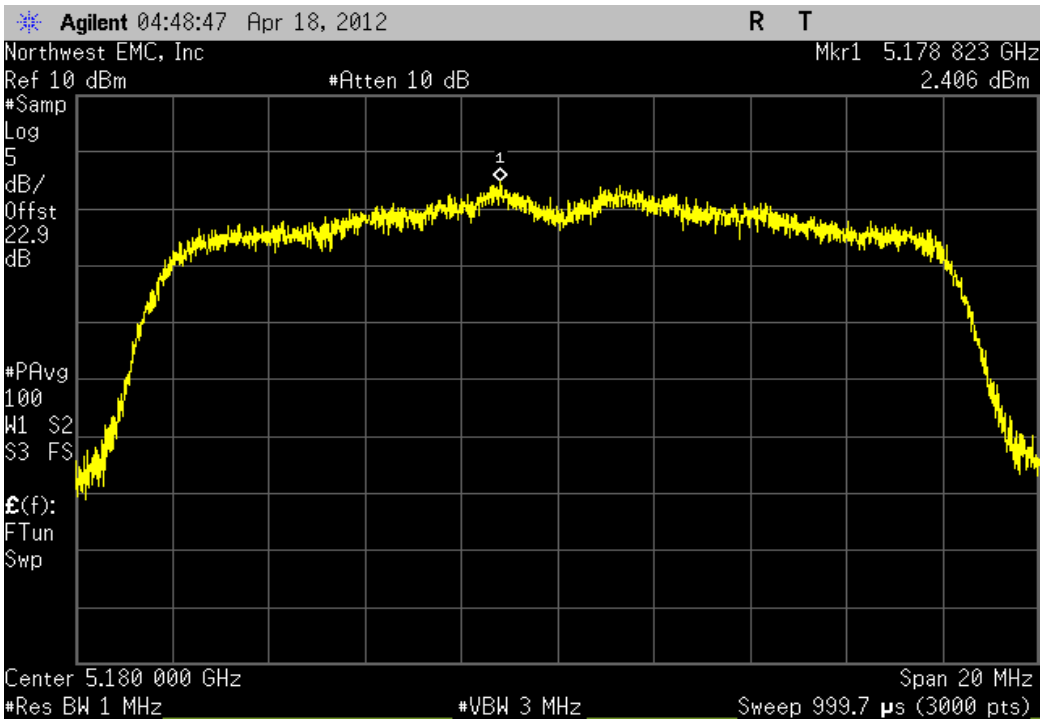


802.11(a) 36 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel						
				Value (dBm / MHz)	Limit (dBm / mHz)	Result
				3.421	4	Pass

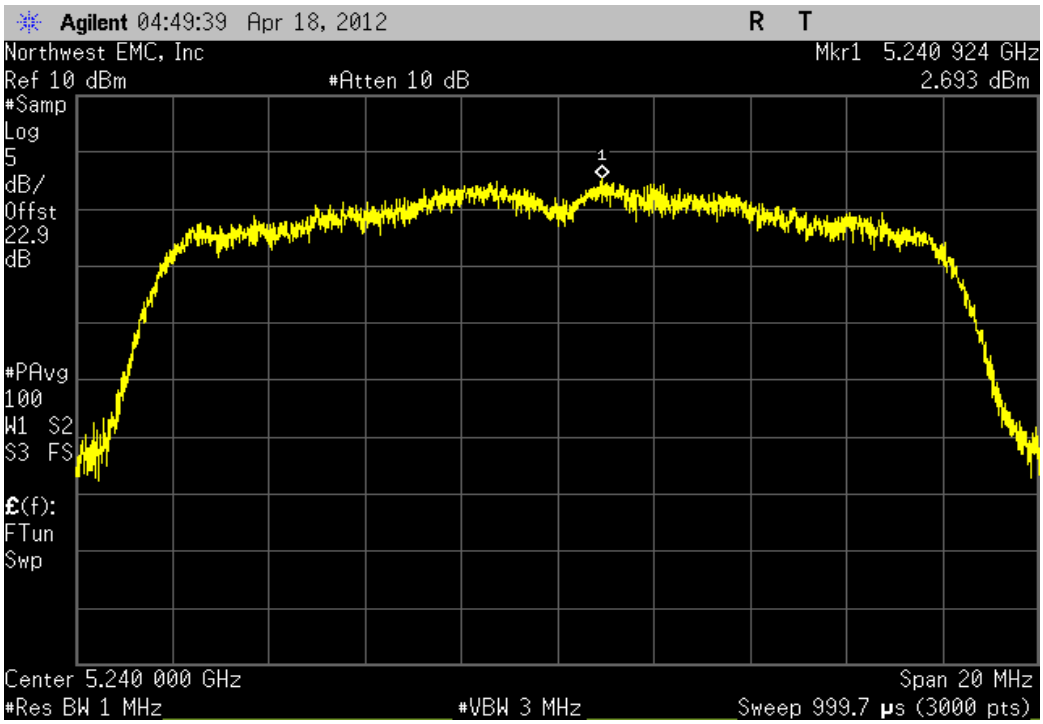


Peak Power Spectral Density

802.11(a) 54 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel							
					Value (dBm / MHz)	Limit (dBm / mHz)	Result
					2.406	4	Pass



802.11(a) 54 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel							
					Value (dBm / MHz)	Limit (dBm / mHz)	Result
					2.693	4	Pass



Peak Excursion

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Signal Generator	Agilent	E8257D	TGU	2/1/2012	12
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	6/2/2011	12
40 GHz DC block	Fairview Microwave	SD3379	AMI	10/12/2011	12
Spectrum Analyzer	Agilent	E4446A	AAY	1/9/2012	12

MEASUREMENT UNCERTAINTY

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

FCC Public Notice DA 02-2138 was followed. The transmit frequency was set to the required channels in each band. The transmit power was set to its default maximum. The lowest, a medium, and the highest data rates were measured. A direct connection was made between the RF output of the EUT and a spectrum analyzer. Attenuation and a DC block were used. The reference level offset on the spectrum analyzer was adjusted to compensate for cable loss and the external attenuation used between the RF output and the spectrum analyzer input.

The spectrum analyzer settings were as follows:

- Span set to encompass the entire emission bandwidth (B), centered on the transmit channel.
- Using the marker delta function, the largest difference between the following two traces was measured:
  - 1st Trace: RBW = 1 MHz, VBW >= 3 MHz with peak detector and max-hold settings.
  - 2nd Trace: Use same settings as were used for peak conducted transmit power. The sample detector was used as well as the VBW being matched to that used on the peak conducted transmit power.

Peak Excursion

EUT:	RAD7CA			**Work Order:**	MASI0095
Serial Number:	34996 Rev C			**Date:**	04/18/12
Customer:	Masimo Corporation			**Temperature:**	22.84 C°C
Attendees:	None			**Humidity:**	38%
Project:	None			**Barometric Pres.:**	1014.4
Tested by:	Mark Baytan	**Power:**	110VAC/60Hz	**Job Site:**	OC07

TEST SPECIFICATIONS	Test Method
FCC 15.407:2012	ANSI C63.10:2009

COMMENTS

Power Setting = 99. Port 1

DEVIATIONS FROM TEST STANDARD

None

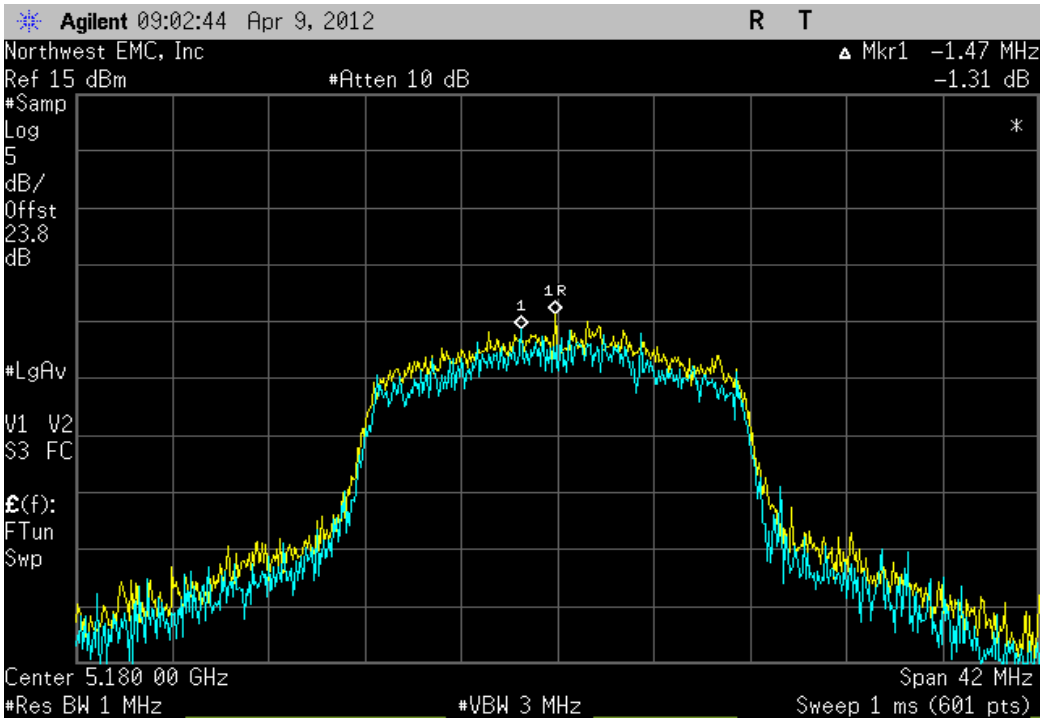
Configuration #	1	Signature

		Value	Limit	Result
802.11(a) 6 Mbps				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	1.307 dB	≤ 13 dB	Pass
	Channel 48, High Channel	0.585 dB	≤ 13 dB	Pass
802.11(a) 36 Mbps				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	0.931 dB	≤ 13 dB	Pass
	Channel 48, High Channel	0.808 dB	≤ 13 dB	Pass
802.11(a) 54 Mbps				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	0.434 dB	≤ 13 dB	Pass
	Channel 48, High Channel	0.368 dB	≤ 13 dB	Pass

Peak Excursion

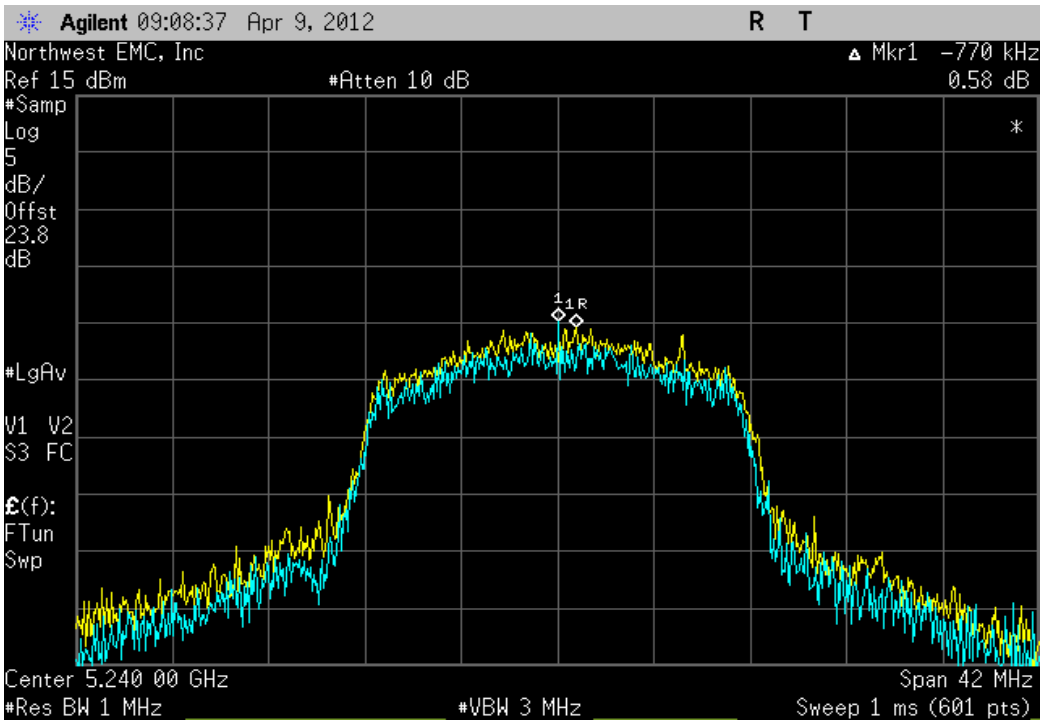
802.11(a) 6 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel

Value	Limit	Result
1.307 dB	≤ 13 dB	Pass



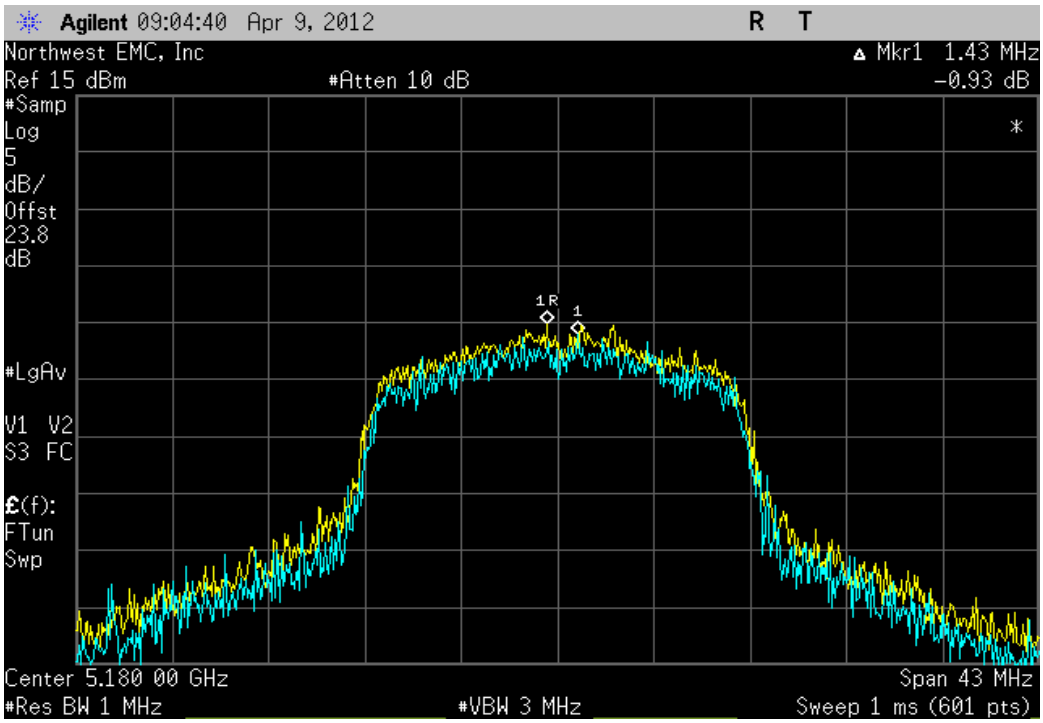
802.11(a) 6 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel

Value	Limit	Result
0.585 dB	≤ 13 dB	Pass



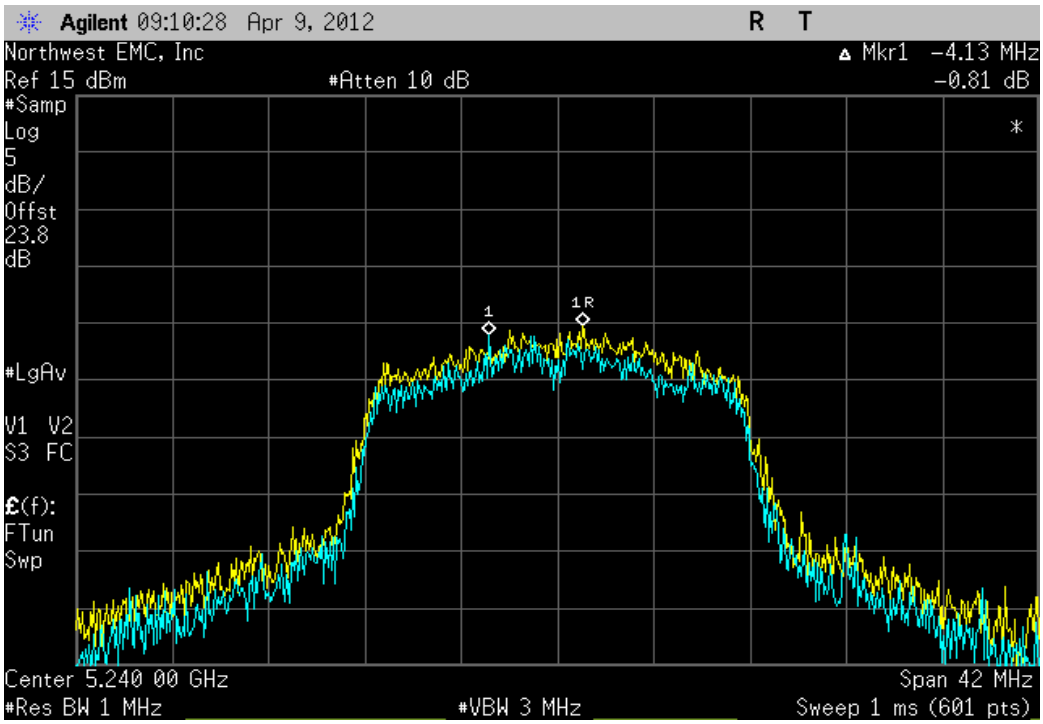
802.11(a) 36 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel

				Value	Limit	Result
				0.931 dB	≤ 13 dB	Pass



802.11(a) 36 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel

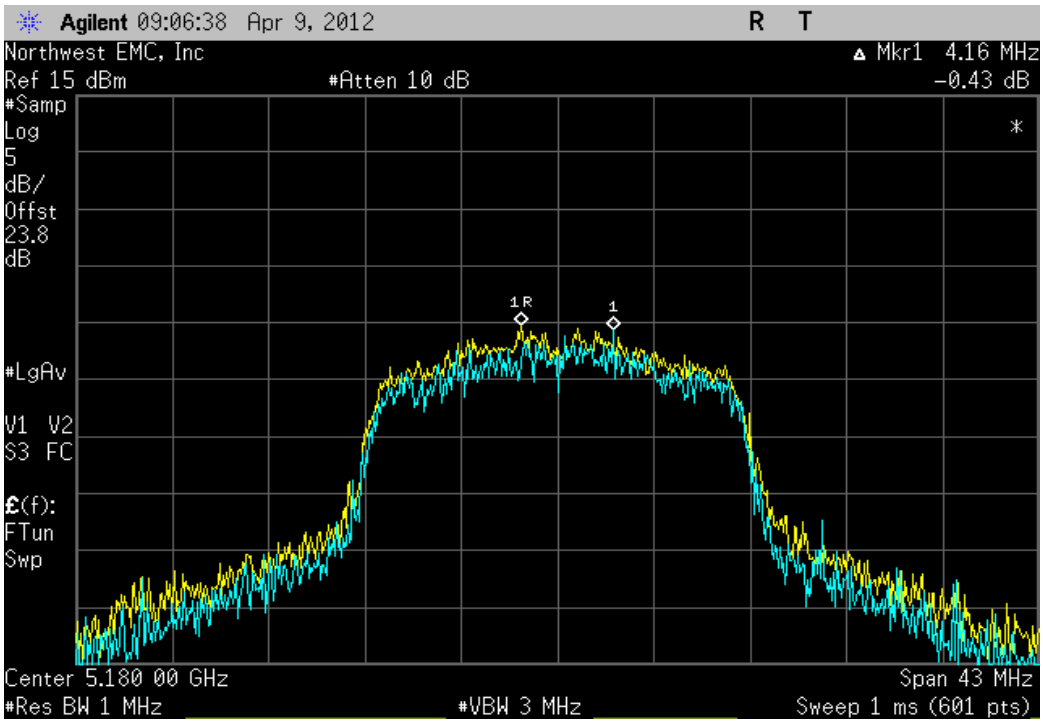
				Value	Limit	Result
				0.808 dB	≤ 13 dB	Pass



Peak Excursion

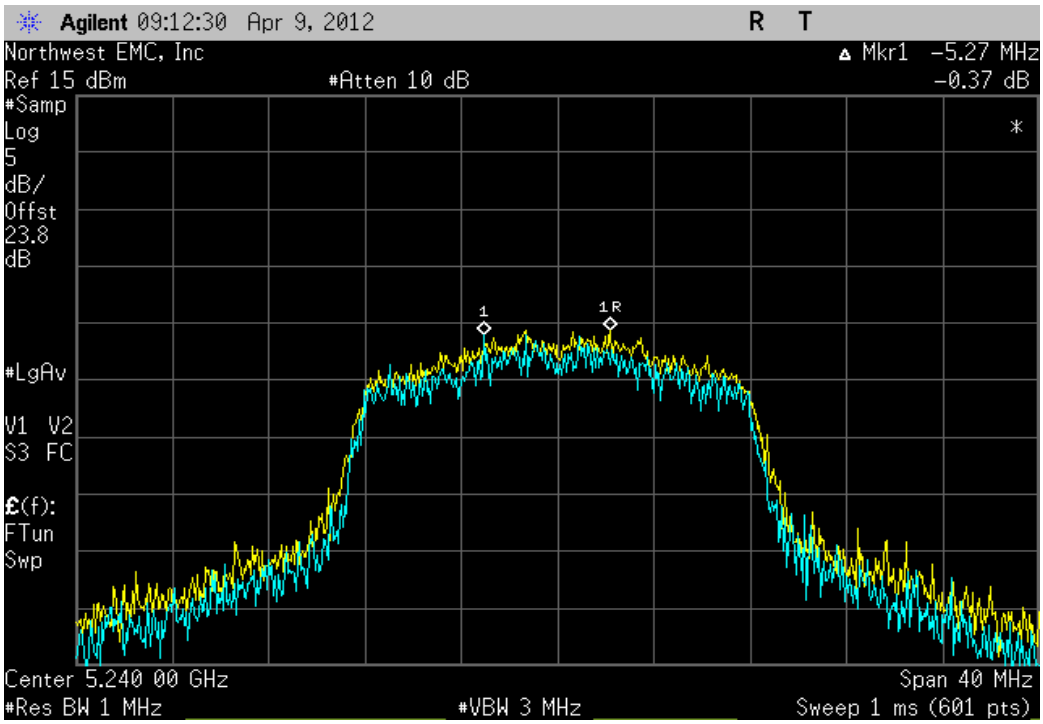
802.11(a) 54 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel

Value	Limit	Result
0.434 dB	≤ 13 dB	Pass



802.11(a) 54 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel

Value	Limit	Result
0.368 dB	≤ 13 dB	Pass



Frequency Stability

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
40 GHz DC block	Fairview Microwave	SD3379	AMI	10/12/2011	12
Signal Generator	Agilent	E8257D	TGU	2/1/2012	12
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	6/2/2011	12
Spectrum Analyzer	Agilent	E4446A	AAY	1/9/2012	12

MEASUREMENT UNCERTAINTY

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

Variation of Supply Voltage

The primary supply voltage was varied from 85 % to 115% of the nominal voltage

Variation of Ambient Temperature

Using a temperature chamber, the transmit frequency was recorded at the extremes of the specified temperature range (0 ° to +50° C) and at 10°C intervals.

A direct connect measurement was made between the EUT's antenna cable and a spectrum analyzer. The spectrum analyzer is equipped with a precision frequency reference that exceeds the stability requirement of the EUT. Measurements were made at the lowest channel of each band to determine frequency stability.

Frequency Stability

EUT:	RAD7CA			**Work Order:**	MASI0095
Serial Number:	34996 Rev C			**Date:**	04/18/12
Customer:	Masimo Corporation			**Temperature:**	22.84 C°C
Attendees:	None			**Humidity:**	38%
Project:	None			**Barometric Pres.:**	1014.4
Tested by:	Mark Baytan	**Power:**	110VAC/60Hz	**Job Site:**	OC07

TEST SPECIFICATIONS	Test Method
FCC 15.407:2012	ANSI C63.10:2009

COMMENTS

Power Setting = 99. Port 1

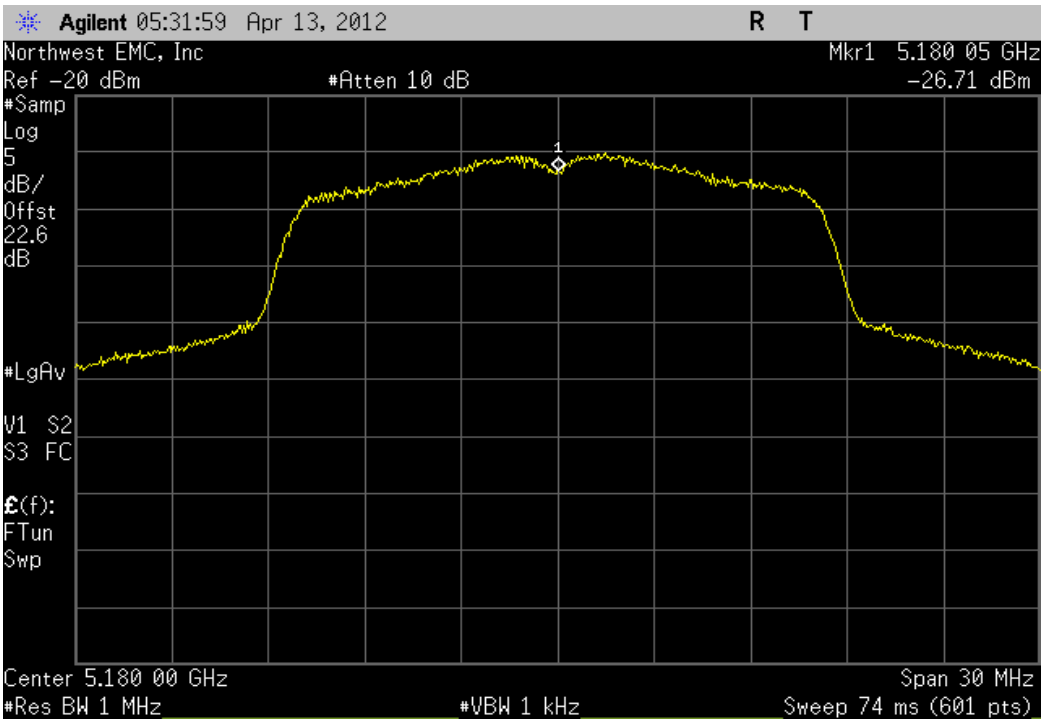
DEVIATIONS FROM TEST STANDARD

None

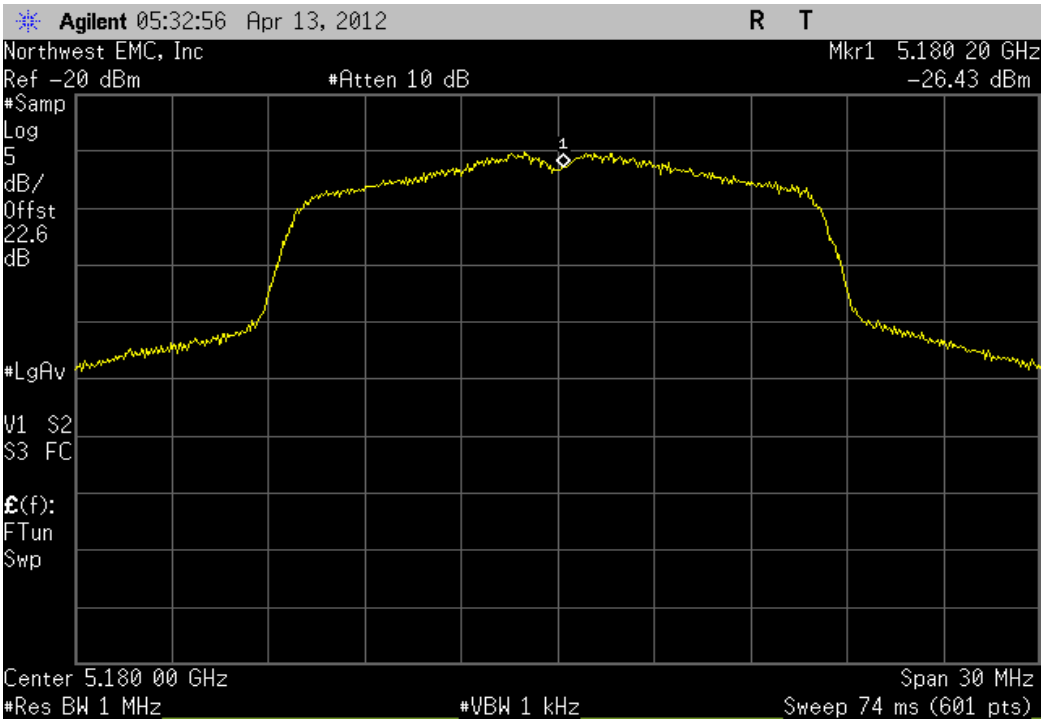
Configuration #	1	Signature

	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
5150 MHz - 5250 MHz - Low Channel, 5180 MHz					
Voltage: 115%	5180.05	5180	9.65	100	Pass
Voltage: 100%	5180.2	5180	38.61	100	Pass
Voltage: 85%	5180.18	5180	34.75	100	Pass
Temperature: +50°	5180.1	5180	19.31	100	Pass
Temperature: +40°	5180.1	5180	19.31	100	Pass
Temperature: +30°	5180.05	5180	9.65	100	Pass
Temperature: +20°	5180.3	5180	57.92	100	Pass
Temperature: +10°	5180.35	5180	67.57	100	Pass
Temperature: 0°	5180.12	5180	23.17	100	Pass

5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5180.05	5180	9.65	100	Pass

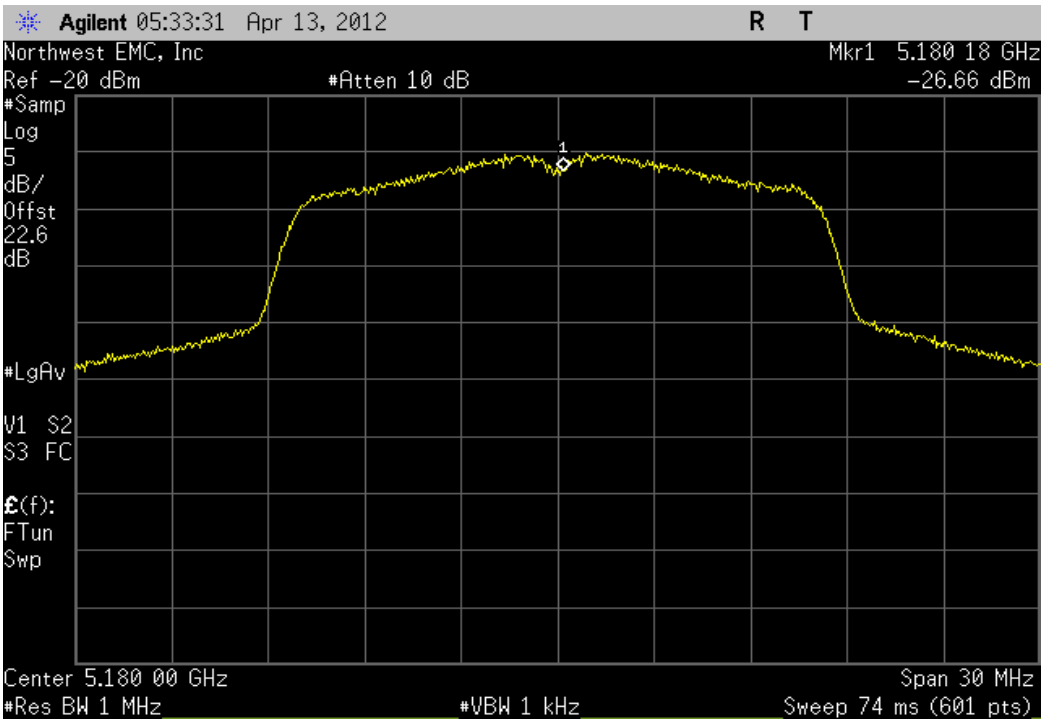


5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5180.2	5180	38.61	100	Pass

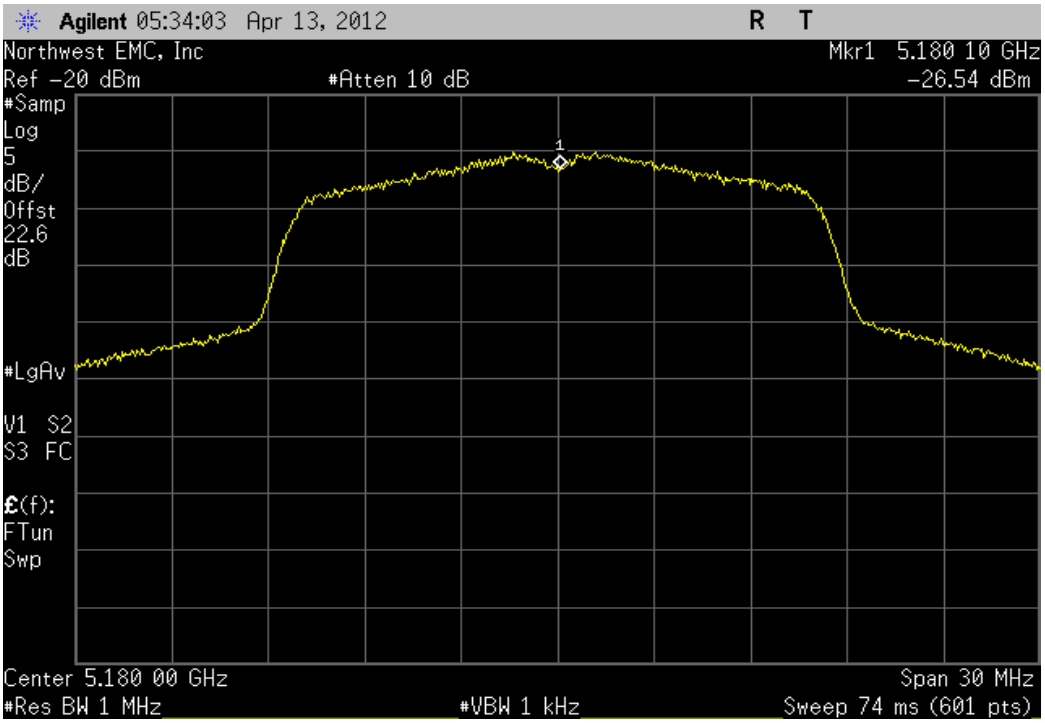


Frequency Stability

5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5180.18	5180	34.75	100	Pass

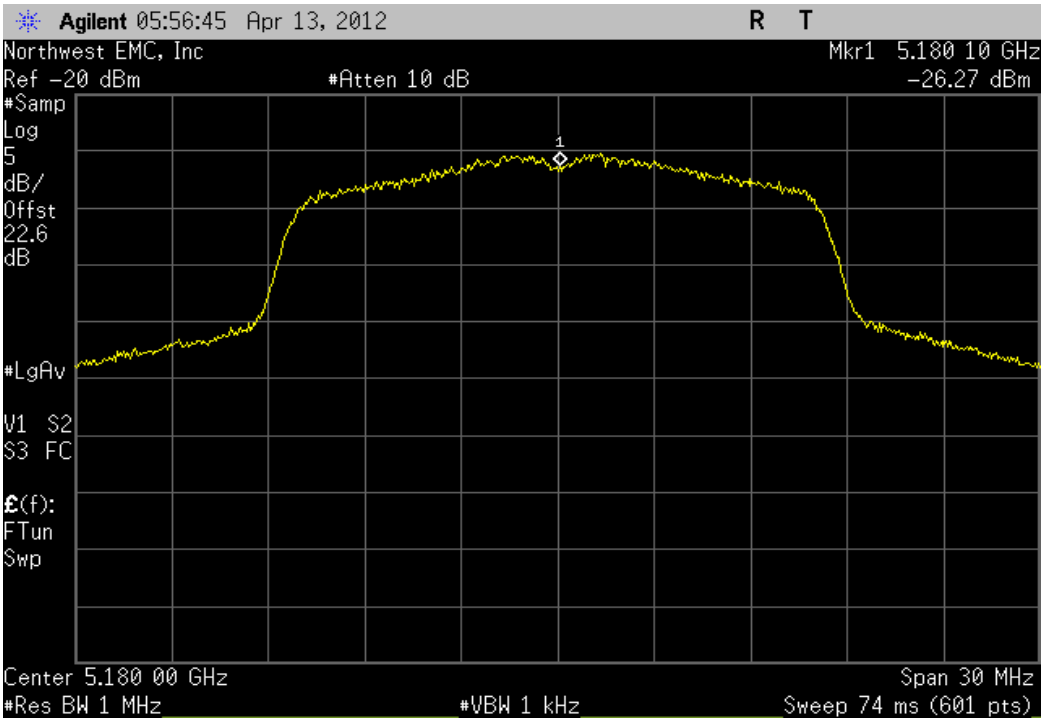


5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +50°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5180.1	5180	19.31	100	Pass

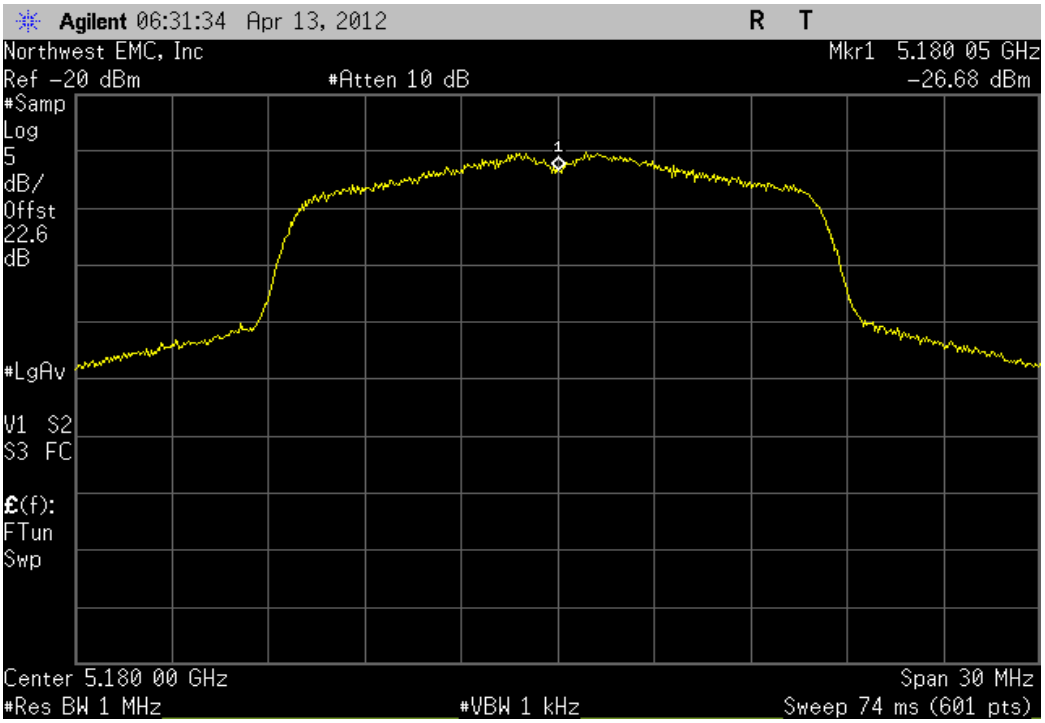


Frequency Stability

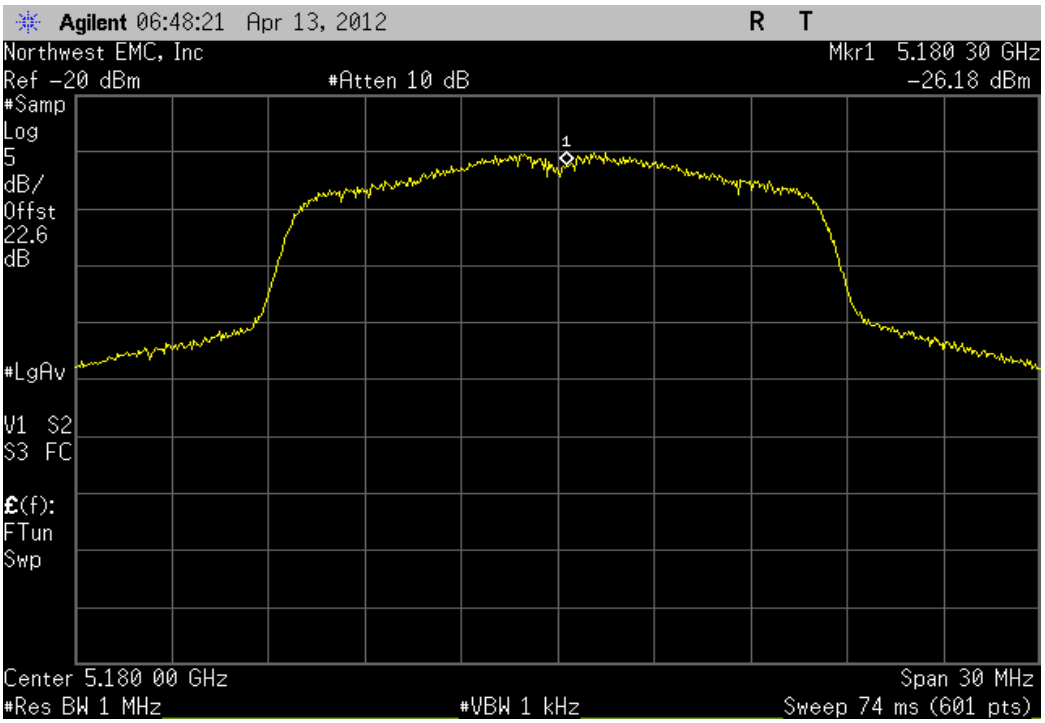
5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5180.1	5180	19.31	100	Pass



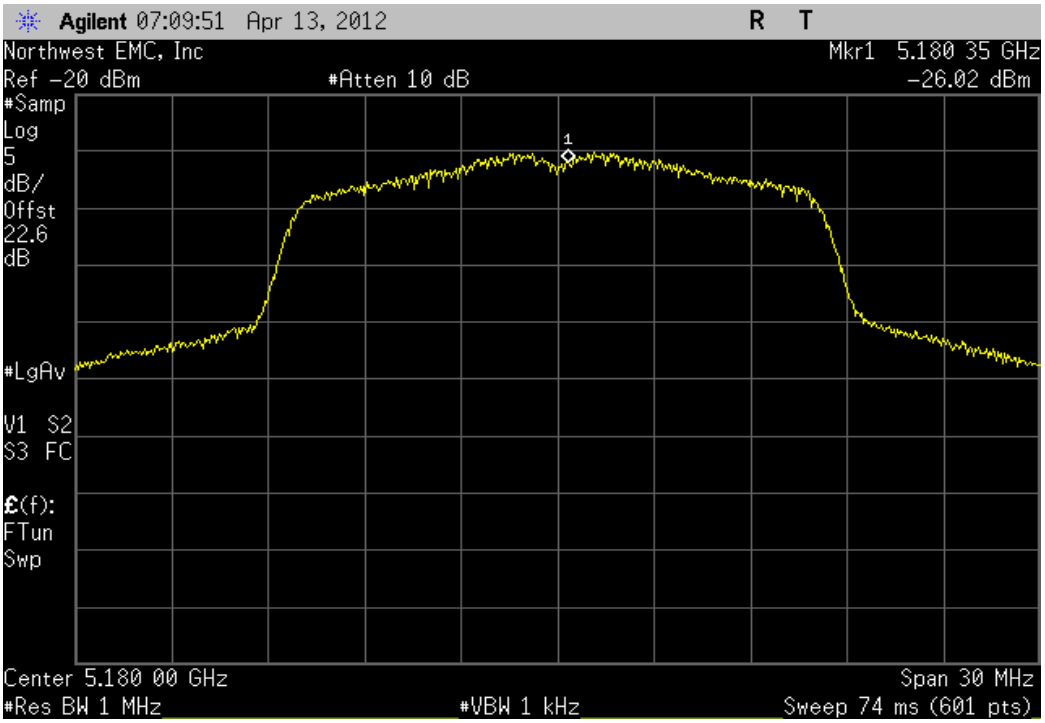
5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5180.05	5180	9.65	100	Pass



5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5180.3	5180	57.92	100	Pass

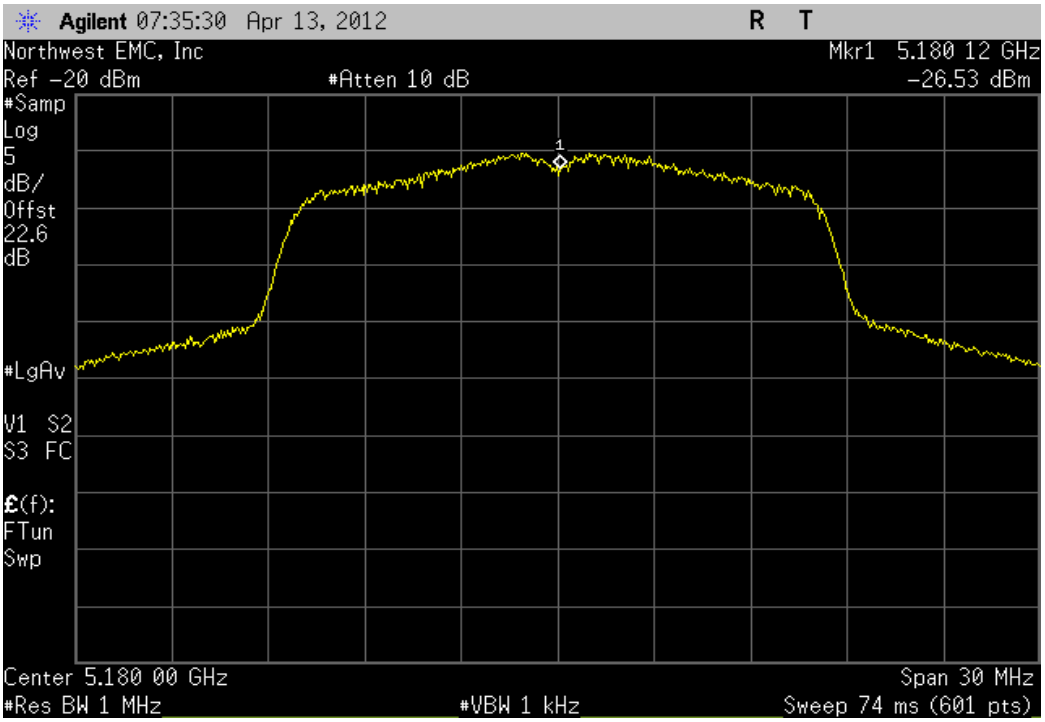


5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5180.35	5180	67.57	100	Pass



Frequency Stability

5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5180.12	5180	23.17	100	Pass



SPURIOUS RADIATED EMISSIONS

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual tes parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

MODES OF OPERATION

802.11(a), Channel 36, 5180 MHz
802.11(a), Channel 48, 5240 MHz

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

MASI0095 - 3

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	40000 MHz

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
5.15-5.35 Notch Filter	Micro-Tronics	BRC50703	HGH	7/22/2010	24 mo
Attenuator, 20db, 'SMA'	Weinschel Corp	4H-20	AWB	6/17/2011	12 mo
High Pass Filter	Micro-Tronics	HPM50111	HGC	11/30/2010	24 mo
Pre-Amplifier	Miteq	JSW45-26004000-40-5P	PAE	12/1/2011	4 mo
Antenna, Horn	ETS	3160-10	AIX	NCR	0 mo
Cable	ESM Cable Corp.	KMKM-72	EVZ	8/29/2011	12 mo
Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AOI	4/29/2011	12 mo
Antenna, Horn	EMCO	3160-09	AHN	NCR	0 mo
OC floating Cable	N/A	18-26GHz RE Cables	OCK	4/29/2011	12 mo
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AOF	11/21/2011	12 mo
Antenna, Horn	ETS	3160-08	AHT	NCR	0 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AOE	11/21/2011	12 mo
Antenna, Horn	ETS	3160-07	AHR	NCR	0 mo
OC 10 Cables	N/A	12-18GHz RE Cables	OCO	10/13/2011	12 mo
Pre-Amplifier	Miteq	AMF-4D-010120-30-10P-1	AOP	6/24/2011	12 mo
Antenna, Horn	EMCO	3115	AHB	3/8/2011	24 mo
OC10 Cables	N/A	1-8GHz RE Cables	OCJ	10/13/2011	12 mo
Antenna, Biconilog	EMCO	3142	AXB	3/28/2011	12 mo
OC10 Cables	N/A	10kHz-1GHz RE Cables	OCH	6/24/2011	12 mo
Pre-Amplifier	Miteq	AM-1064-9079	AOO	6/28/2011	12 mo
Spectrum Analyzer	Agilent	E4446A	AAY	1/9/2012	12 mo

MEASUREMENT BANDWIDTHS

Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
0.01 - 0.15	1.0	0.2	0.2
0.15 - 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

MEASUREMENT UNCERTAINTY

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

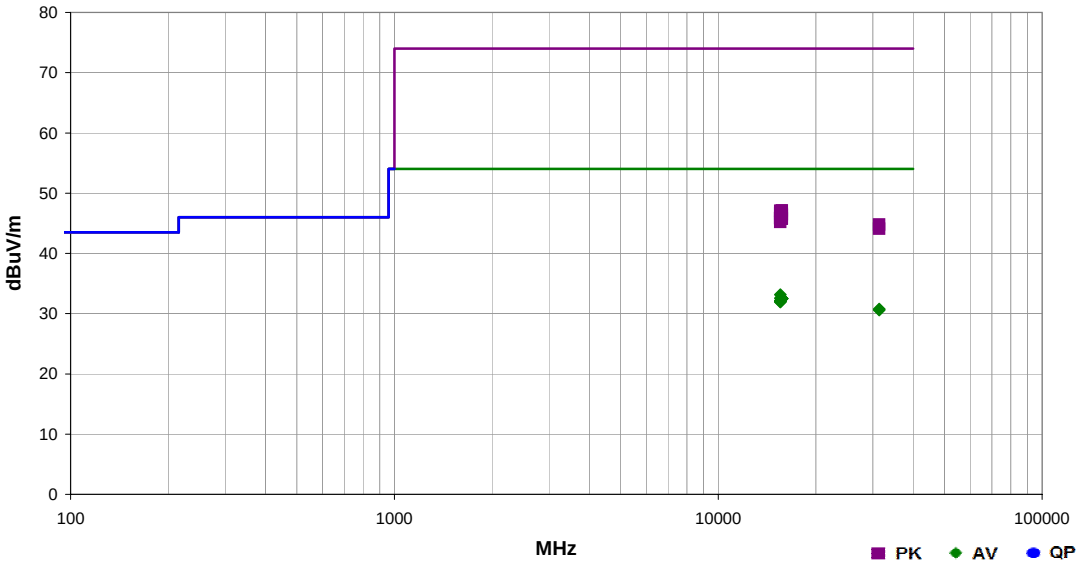
The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for low and high band transmit frequencies. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify compliance. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and the EUT antenna in three orthogonal axis, and adjusting measurement antenna height and polarization, and manipulating the EUT antenna in 3 orthogonal planes (per ANSI C63.10:2009). A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

SPURIOUS RADIATED EMISSIONS

Work Order:	MASI0095	**Date:**	05/01/12		
Project:	None	**Temperature:**	24.54 °C		
Job Site:	OC10	**Humidity:**	35.15% RH		
Serial Number:	34996 Rev C.	**Barometric Pres.:**	1019 mbar	**Tested by:**	Mark Baytan
EUT:	RAD7CA				
Configuration:	3				
Customer:	Masimo Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 801.11(a) Channels 36 and 48. Antenna Port 1. See data rates on comments.				
Deviations:	None				
Comments:	Power Setting = 99. With docking station. Only finger sensor cable attached.				

Test Specifications	**Test Method**
FCC 15.407:2012	ANSI C63.10:2009

Run #	31	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



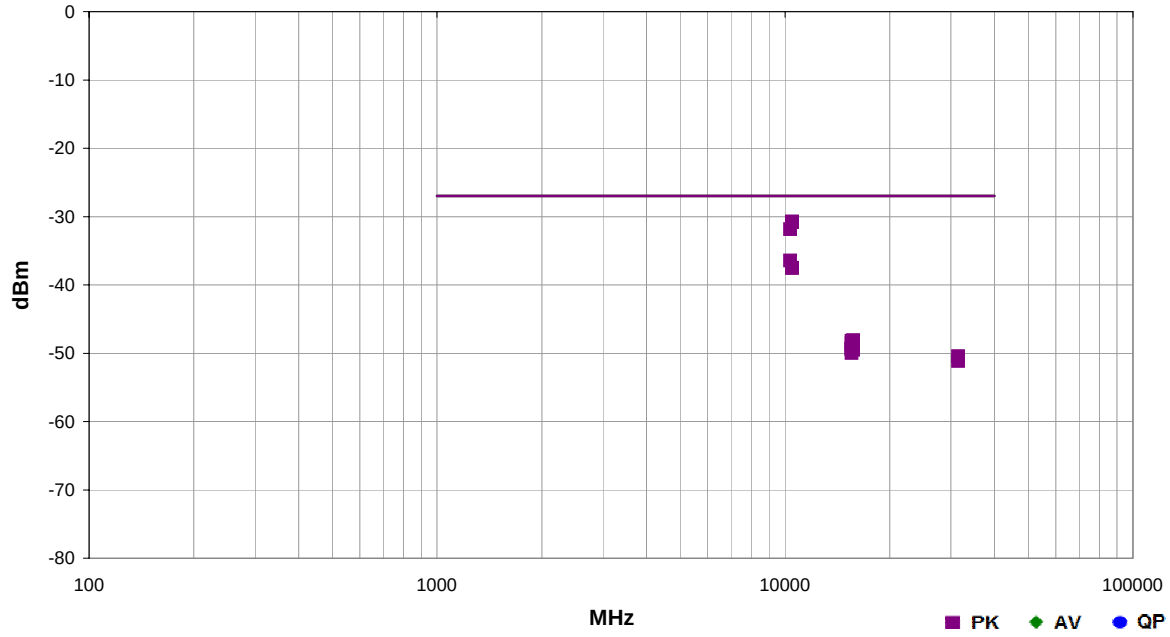
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance ()	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted ()	Spec. Limit ()	Compared to Spec. (dB)	Comments
15540.130	26.8	6.3	1.0	245.0	3.0	0.0	Horz	AV	0.0	33.1	54.0	-20.9	Ch 36, 6 Mbps, Y-Axis
15540.200	26.2	6.3	1.0	293.0	3.0	0.0	Horz	AV	0.0	32.5	54.0	-21.5	Ch 36, 36 Mbps, Y-Axis
15721.870	25.5	7.0	1.0	114.0	3.0	0.0	Horz	AV	0.0	32.5	54.0	-21.5	Ch 48, 6 Mbps, Y-Axis
15721.820	25.5	7.0	1.0	17.0	3.0	0.0	Horz	AV	0.0	32.5	54.0	-21.5	Ch 48, 36 Mbps, Y-Axis
15721.650	25.5	7.0	1.0	13.0	3.0	0.0	Horz	AV	0.0	32.5	54.0	-21.5	Ch 48, 54 Mbps, Y-Axis
15721.630	25.5	7.0	2.9	345.0	3.0	0.0	Vert	AV	0.0	32.5	54.0	-21.5	Ch 48, 6 Mbps, Y-Axis
15721.560	25.5	7.0	1.0	15.0	3.0	0.0	Vert	AV	0.0	32.5	54.0	-21.5	Ch 48, 36 Mbps, Y-Axis
15721.670	25.4	7.0	1.1	43.0	3.0	0.0	Vert	AV	0.0	32.4	54.0	-21.6	Ch 48, 54 Mbps, Y-Axis
15541.860	25.8	6.3	1.0	194.0	3.0	0.0	Horz	AV	0.0	32.1	54.0	-21.9	Ch 36, 54 Mbps, Y-Axis
15541.910	25.7	6.3	1.0	324.0	3.0	0.0	Vert	AV	0.0	32.0	54.0	-22.0	Ch 36, 6 Mbps, Y-Axis
15540.690	25.7	6.3	1.0	112.0	3.0	0.0	Vert	AV	0.0	32.0	54.0	-22.0	Ch 36, 6 Mbps, Y-Axis
15541.760	25.6	6.3	1.0	326.0	3.0	0.0	Vert	AV	0.0	31.9	54.0	-22.1	Ch 36, 36 Mbps, Y-Axis
31441.830	41.7	-10.9	1.0	269.0	3.0	0.0	Vert	AV	0.0	30.8	54.0	-23.2	Ch 36, 6 Mbps, Y-Axis
31441.670	41.5	-10.9	1.0	240.0	3.0	0.0	Horz	AV	0.0	30.6	54.0	-23.4	Ch 36, 6 Mbps, Y-Axis
15721.570	40.1	7.0	1.0	17.0	3.0	0.0	Horz	PK	0.0	47.1	74.0	-26.9	Ch 48, 54 Mbps, Y-Axis
15539.860	40.7	6.3	1.0	245.0	3.0	0.0	Horz	PK	0.0	47.0	74.0	-27.0	Ch 36, 6 Mbps, Y-Axis
15541.750	40.3	6.3	1.0	293.0	3.0	0.0	Horz	PK	0.0	46.6	74.0	-27.4	Ch 36, 36 Mbps, Y-Axis
15721.560	39.5	7.0	1.0	13.0	3.0	0.0	Horz	PK	0.0	46.5	74.0	-27.5	Ch 48, 54 Mbps, Y-Axis
15721.410	39.5	7.0	1.0	114.0	3.0	0.0	Horz	PK	0.0	46.5	74.0	-27.5	Ch 48, 36 Mbps, Y-Axis
15719.460	39.3	7.0	2.9	345.0	3.0	0.0	Vert	PK	0.0	46.3	74.0	-27.7	Ch 48, 6 Mbps, Y-Axis
15541.610	39.5	6.3	1.0	194.0	3.0	0.0	Horz	PK	0.0	45.8	74.0	-28.2	Ch 36, 54 Mbps, Y-Axis
15540.670	39.5	6.3	1.0	112.0	3.0	0.0	Vert	PK	0.0	45.8	74.0	-28.2	Ch 36, 6 Mbps, Y-Axis
15540.520	39.5	6.3	1.0	324.0	3.0	0.0	Vert	PK	0.0	45.8	74.0	-28.2	Ch 36, 6 Mbps, Y-Axis
15718.970	38.8	7.0	1.1	43.0	3.0	0.0	Vert	PK	0.0	45.8	74.0	-28.2	Ch 48, 54 Mbps, Y-Axis
15718.590	38.7	7.0	1.0	15.0	3.0	0.0	Vert	PK	0.0	45.7	74.0	-28.3	Ch 48, 36 Mbps, Y-Axis
15538.010	38.9	6.3	1.0	326.0	3.0	0.0	Vert	PK	0.0	45.2	74.0	-28.8	Ch 36, 36 Mbps, Y-Axis
31440.070	55.7	-10.9	1.0	269.0	3.0	0.0	Vert	PK	0.0	44.8	74.0	-29.2	Ch 36, 6 Mbps, Y-Axis
31441.930	55.0	-10.9	1.0	240.0	3.0	0.0	Horz	PK	0.0	44.1	74.0	-29.9	Ch 36, 6 Mbps, Y-Axis

SPURIOUS RADIATED EMISSIONS

Work Order:	MASI0095	**Date:**	05/01/12		
Project:	None	**Temperature:**	24.54 °C		
Job Site:	OC10	**Humidity:**	35.15% RH		
Serial Number:	34996 Rev C.	**Barometric Pres.:**	1019 mbar	**Tested by:**	Mark Baytan
EUT:	RAD7CA				
Configuration:	3				
Customer:	Masimo Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 801.11(a) Channels 36 and 48. Antenna Port 1. See data rates on comments.				
Deviations:	None				
Comments:	Power Setting = 99. With docking station. Only finger sensor cable attached.				

Test Specifications	**Test Method**
FCC 15.407:2012	ANSI C63.10:2009

Run #	31	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



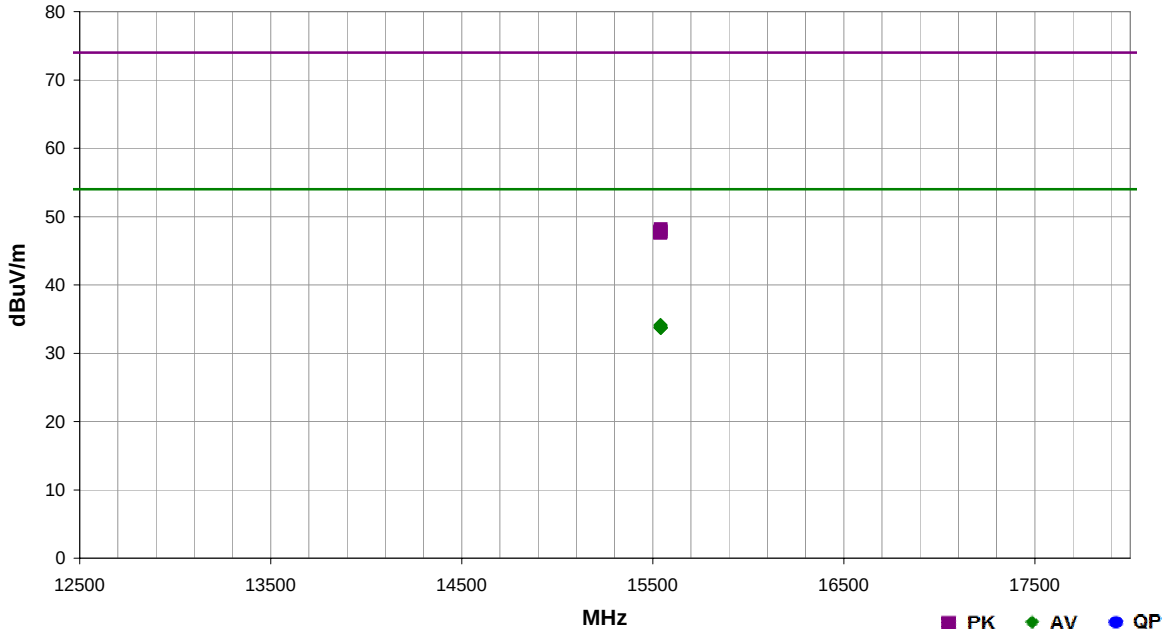
	Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments	
	10481.940	0.0	269.0	Horz	PK	8.44E-07	-30.7	-27.0	-3.7	Ch 36, 36 Mbps, Y-Axis	
	10480.410	0.0	267.0	Horz	PK	8.25E-07	-30.8	-27.0	-3.8	Ch 36, 54 Mbps, Y-Axis	
	10362.340	0.0	264.0	Horz	PK	6.55E-07	-31.8	-27.0	-4.8	Ch 36, 6 Mbps, Y-Axis	
	10362.170	0.0	328.0	Vert	PK	2.27E-07	-36.4	-27.0	-9.4	Ch 48, 6 Mbps, Y-Axis	
	10480.660	0.0	250.0	Vert	PK	1.76E-07	-37.5	-27.0	-10.5	Ch 48, 36 Mbps, Y-Axis	
	10481.315	0.0	328.0	Vert	PK	1.76E-07	-37.5	-27.0	-10.5	Ch 48, 54 Mbps, Y-Axis	
	15721.570	1.0	17.0	Horz	PK	1.55E-08	-48.1	-27.0	-21.1	Ch 48, 54 Mbps, Y-Axis	
	15539.860	1.0	245.0	Horz	PK	1.52E-08	-48.2	-27.0	-21.2	Ch 36, 6 Mbps, Y-Axis	
	15541.750	1.0	293.0	Horz	PK	1.39E-08	-48.6	-27.0	-21.6	Ch 36, 36 Mbps, Y-Axis	
	15721.560	1.0	13.0	Horz	PK	1.35E-08	-48.7	-27.0	-21.7	Ch 48, 54 Mbps, Y-Axis	
	15721.410	1.0	114.0	Horz	PK	1.35E-08	-48.7	-27.0	-21.7	Ch 48, 36 Mbps, Y-Axis	
	15719.460	2.9	345.0	Vert	PK	1.29E-08	-48.9	-27.0	-21.9	Ch 48, 6 Mbps, Y-Axis	
	15541.610	1.0	194.0	Horz	PK	1.15E-08	-49.4	-27.0	-22.4	Ch 36, 54 Mbps, Y-Axis	
	15540.670	1.0	112.0	Vert	PK	1.15E-08	-49.4	-27.0	-22.4	Ch 36, 6 Mbps, Y-Axis	
	15540.520	1.0	324.0	Vert	PK	1.15E-08	-49.4	-27.0	-22.4	Ch 36, 6 Mbps, Y-Axis	
	15718.970	1.1	43.0	Vert	PK	1.15E-08	-49.4	-27.0	-22.4	Ch 48, 54 Mbps, Y-Axis	
	15718.590	1.0	15.0	Vert	PK	1.12E-08	-49.5	-27.0	-22.5	Ch 48, 36 Mbps, Y-Axis	
	15538.010	1.0	326.0	Vert	PK	1.00E-08	-50.0	-27.0	-23.0	Ch 36, 36 Mbps, Y-Axis	
	31440.070	1.0	269.0	Vert	PK	9.01E-09	-50.5	-27.0	-23.5	Ch 36, 6 Mbps, Y-Axis	
	31441.930	1.0	240.0	Horz	PK	7.67E-09	-51.2	-27.0	-24.2	Ch 36, 6 Mbps, Y-Axis	

SPURIOUS RADIATED EMISSIONS

Work Order:	MASI0095	**Date:**	05/01/12		
Project:	None	**Temperature:**	24.54 °C		
Job Site:	OC10	**Humidity:**	35.15% RH		
Serial Number:	34996 Rev C.	**Barometric Pres.:**	1019 mbar	**Tested by:**	Mark Baytan
EUT:	RAD7CA				
Configuration:	3				
Customer:	Masimo Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 801.11(a) Channels 36. Antenna Port 2. See data rates on comments.				
Deviations:	None				
Comments:	Power Setting = 99. With docking station. Only finger sensor cable attached.				

Test Specifications	**Test Method**
FCC 15.407:2012	ANSI C63.10:2009

Run #	1	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



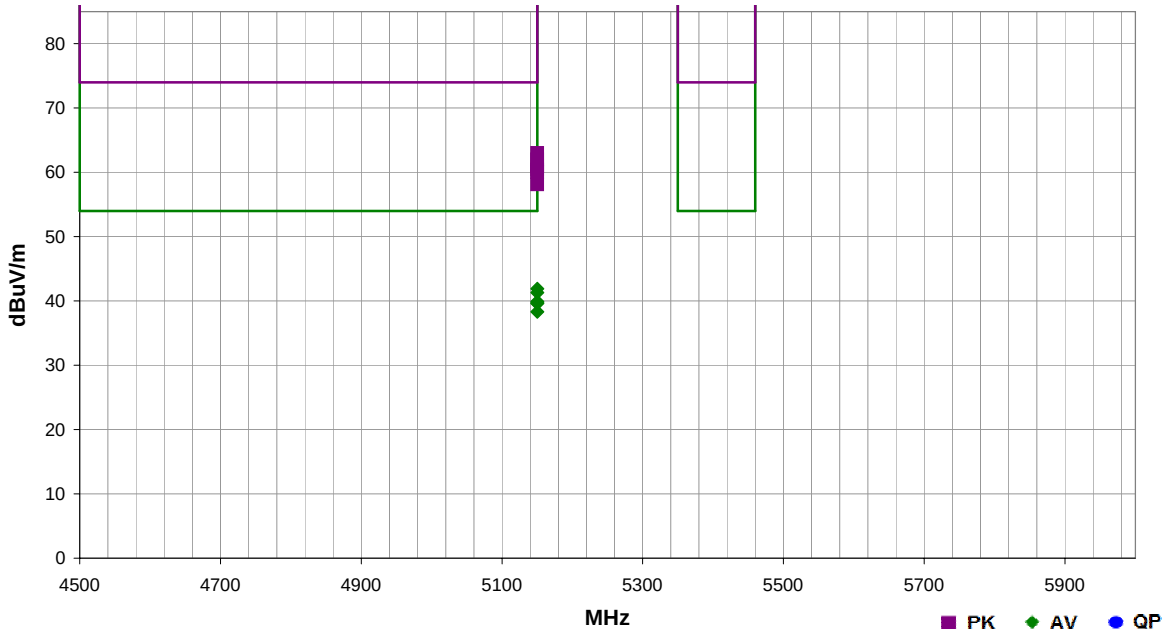
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
15539.970	28.5	5.6	0.0	224.0	3.0	0.0	Vert	AV	0.0	34.1	54.0	-19.9	Ch 36, 6 Mbps, Y-Axis
15540.100	28.4	5.6	0.0	276.0	3.0	0.0	Horz	AV	0.0	34.0	54.0	-20.0	Ch 36, 6 Mbps, Y-Axis
15540.010	28.2	5.6	0.0	46.0	3.0	0.0	Vert	AV	0.0	33.8	54.0	-20.2	Ch 36, 36 Mbps, Y-Axis
15541.930	28.1	5.6	0.0	4.0	3.0	0.0	Horz	AV	0.0	33.7	54.0	-20.3	Ch 36, 54 Mbps, Y-Axis
15541.710	28.1	5.6	0.0	113.0	3.0	0.0	Vert	AV	0.0	33.7	54.0	-20.3	Ch 36, 54 Mbps, Y-Axis
15540.290	28.1	5.6	0.0	298.0	3.0	0.0	Horz	AV	0.0	33.7	54.0	-20.3	Ch 36, 36 Mbps, Y-Axis
15541.950	42.5	5.6	0.0	113.0	3.0	0.0	Vert	PK	0.0	48.1	74.0	-25.9	Ch 36, 6 Mbps, Y-Axis
15541.520	42.2	5.6	0.0	4.0	3.0	0.0	Horz	PK	0.0	47.8	74.0	-26.2	Ch 36, 54 Mbps, Y-Axis
15540.990	42.2	5.6	0.0	298.0	3.0	0.0	Horz	PK	0.0	47.8	74.0	-26.2	Ch 36, 36 Mbps, Y-Axis
15541.040	42.1	5.6	0.0	276.0	3.0	0.0	Horz	PK	0.0	47.7	74.0	-26.3	Ch 36, 6 Mbps, Y-Axis
15540.070	42.0	5.6	0.0	46.0	3.0	0.0	Vert	PK	0.0	47.6	74.0	-26.4	Ch 36, 54 Mbps, Y-Axis
15538.460	42.0	5.6	0.0	224.0	3.0	0.0	Vert	PK	0.0	47.6	74.0	-26.4	Ch 36, 36 Mbps, Y-Axis

SPURIOUS RADIATED EMISSIONS

Work Order:	MASI0095	**Date:**	05/01/12		
Project:	None	**Temperature:**	24.54 °C		
Job Site:	OC10	**Humidity:**	35.15% RH		
Serial Number:	34996 Rev C.	**Barometric Pres.:**	1019 mbar	**Tested by:**	Mark Baytan
EUT:	RAD7CA				
Configuration:	3 - Stand Alone Unit				
Customer:	Masimo Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 801.11(a) Channels 36. Antenna Port 1. See data rates on comments.				
Deviations:	None				
Comments:	Power Setting = 99. With docking station. Only finger sensor cable attached.				

Test Specifications	**Test Method**
FCC 15.407:2012	ANSI C63.10:2009

Run #	35	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
5150.000	52.0	11.0	1.0	195.0	3.0	0.0	Vert	PK	0.0	63.0	74.0	-11.0	Ch. 36, 6 Mbps, Y-Axis
5150.000	51.0	11.0	1.0	216.0	3.0	0.0	Vert	PK	0.0	62.0	74.0	-12.0	Ch. 36, 36 Mbps, Y-Axis
5150.000	30.9	11.0	1.0	195.0	3.0	0.0	Vert	AV	0.0	41.9	54.0	-12.1	Ch. 36, 6 Mbps, Y-Axis
5150.000	30.3	11.0	1.0	216.0	3.0	0.0	Vert	AV	0.0	41.3	54.0	-12.7	Ch. 36, 36 Mbps, Y-Axis
5150.000	49.9	11.0	1.0	191.0	3.0	0.0	Vert	PK	0.0	60.9	74.0	-13.1	Ch. 36, 54 Mbps, Y-Axis
5150.000	49.4	11.0	1.0	108.0	3.0	0.0	Horz	PK	0.0	60.4	74.0	-13.6	Ch. 36, 6 Mbps, Y-Axis
5150.000	49.0	11.0	1.0	109.0	3.0	0.0	Horz	PK	0.0	60.0	74.0	-14.0	Ch. 36, 54 Mbps, Y-Axis
5150.000	28.9	11.0	1.0	108.0	3.0	0.0	Horz	AV	0.0	39.9	54.0	-14.1	Ch. 36, 6 Mbps, Y-Axis
5150.000	28.7	11.0	1.0	191.0	3.0	0.0	Vert	AV	0.0	39.7	54.0	-14.3	Ch. 36, 54 Mbps, Y-Axis
5150.000	28.6	11.0	1.0	109.0	3.0	0.0	Horz	AV	0.0	39.6	54.0	-14.4	Ch. 36, 54 Mbps, Y-Axis
5150.000	27.3	11.0	1.0	35.0	3.0	0.0	Horz	AV	0.0	38.3	54.0	-15.7	Ch. 36, 36 Mbps, Y-Axis
5150.000	47.1	11.0	1.0	35.0	3.0	0.0	Horz	PK	0.0	58.1	74.0	-15.9	Ch. 36, 36 Mbps, Y-Axis

AC POWERLINE CONDUCTED EMISSIONS

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION

Transmitting 802.11(a) Channel 48, 6 Mbps.
Transmitting 802.11(a) Channel 36, 6 Mbps.

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

MASI0095 - 2

SAMPLE CALCULATIONS

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
LISN	Solar	9252-50-R-24-BNC	LIC	4/26/2011	12 mo
LISN	Solar	9252-50-24-BNC	LIA	6/13/2011	12 mo
Attenuator	Pasternack	6N10W-20	AWC	3/1/2012	12 mo
High Pass Filter	TTE	H97-100K-50-720B	HFP	3/1/2012	24 mo
OC06 Cables	N/A	Telecom Cables	OCP	4/6/2012	12 mo
OC06 Cables	N/A	CE Cables	OCM	4/6/2012	12 mo
Receiver	Rohde & Schwarz	ESCI	ARG	3/22/2012	12 mo

MEASUREMENT BANDWIDTHS

Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
0.01 - 0.15	1.0	0.2	0.2
0.15 - 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

Measurements were made using the bandwidths and detectors specified. No video filter was used.

MEASUREMENT UNCERTAINTY

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

The EUT will be powered either directly or indirectly from the AC power line. Therefore, conducted emissions measurements were made on the AC input of the EUT, or on the AC input of the device used to power the EUT. The AC power line conducted emissions were measured with the EUT operating at low and high transmit channels in the operational band. For each mode, the spectrum was scanned from 150 kHz to 30 MHz. The test setup and procedures were in accordance with ANSI C63.10-2009.

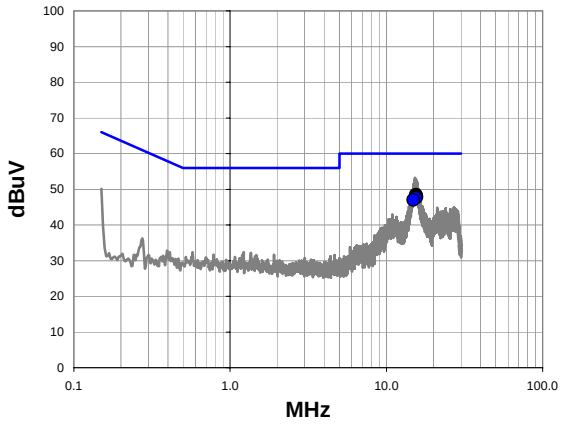
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	MASI0095	**Date:**	04/18/12		
Project:	None	**Temperature:**	23.71 °C		
Job Site:	OC06	**Humidity:**	46.78 % RH		
Serial Number:	34996 Rev C.	**Barometric Pres.:**	1011 mbar	**Tested by:**	Mark Baytan
EUT:	RAD7CA				
Configuration:	2				
Customer:	Masimo Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 802.11(a) Channel 36, 6 Mbps.				
Deviations:	None				
Comments:	Power Setting = 99. Port 1.				

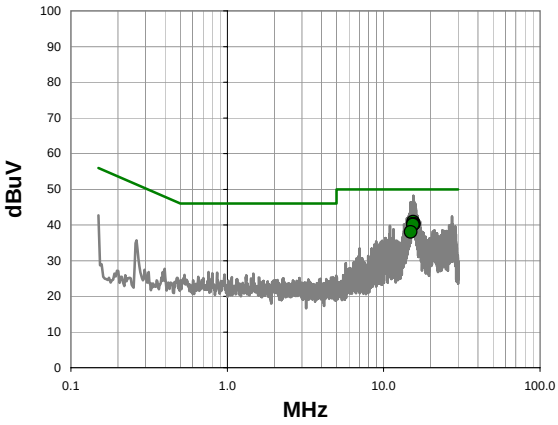
Test Specifications	**Test Method**
FCC 15.407:2011	ANSI C63.10:2009

Run #	1	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
15.459	27.7	20.7	48.4	60.0	-11.6
15.510	27.5	20.7	48.2	60.0	-11.8
15.551	27.3	20.7	48.0	60.0	-12.0
15.594	27.1	20.7	47.8	60.0	-12.2
15.427	26.9	20.7	47.6	60.0	-12.4
14.884	26.4	20.6	47.0	60.0	-13.0

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
15.459	20.2	20.7	40.9	50.0	-9.1
15.510	19.6	20.7	40.3	50.0	-9.7
15.594	19.6	20.7	40.3	50.0	-9.7
15.551	19.5	20.7	40.2	50.0	-9.8
15.427	19.4	20.7	40.1	50.0	-9.9
14.884	17.4	20.6	38.0	50.0	-12.0

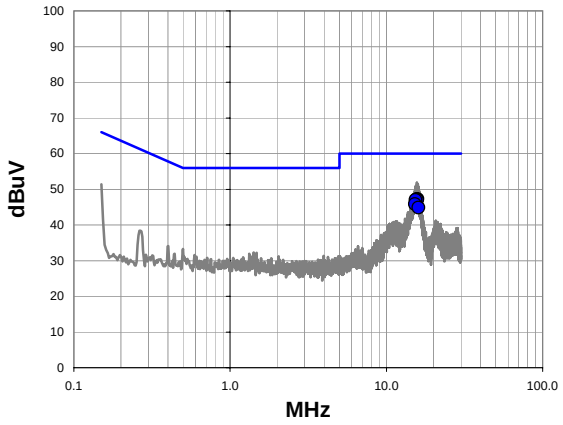
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	MASI0095	**Date:**	04/18/12		
Project:	None	**Temperature:**	23.71 °C		
Job Site:	OC06	**Humidity:**	46.78 % RH		
Serial Number:	34996 Rev C.	**Barometric Pres.:**	1011 mbar	**Tested by:**	Mark Baytan
EUT:	RAD7CA				
Configuration:	2				
Customer:	Masimo Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 802.11(a) Channel 36, 6 Mbps.				
Deviations:	None				
Comments:	Power Setting = 99. Port 1.				

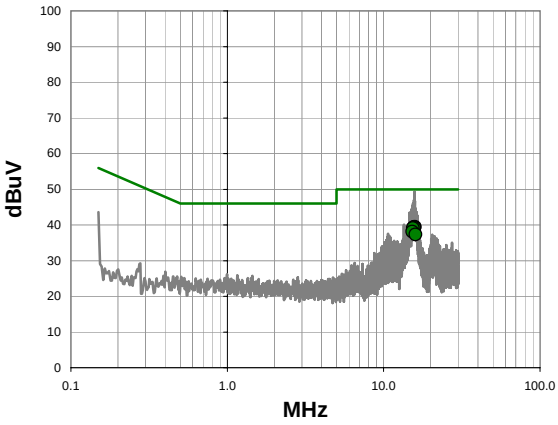
Test Specifications	**Test Method**
FCC 15.407:2011	ANSI C63.10:2009

Run #	2	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
15.809	26.6	20.7	47.3	60.0	-12.7
15.602	26.5	20.7	47.2	60.0	-12.8
15.682	26.4	20.7	47.1	60.0	-12.9
15.755	26.3	20.7	47.0	60.0	-13.0
15.401	26.3	20.7	47.0	60.0	-13.0
15.244	25.1	20.7	45.8	60.0	-14.2
16.028	24.1	20.7	44.8	60.0	-15.2

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
15.809	18.8	20.7	39.5	50.0	-10.5
15.682	18.7	20.7	39.4	50.0	-10.6
15.602	18.7	20.7	39.4	50.0	-10.6
15.755	18.5	20.7	39.2	50.0	-10.8
15.401	18.4	20.7	39.1	50.0	-10.9
15.244	17.4	20.7	38.1	50.0	-11.9
16.028	16.6	20.7	37.3	50.0	-12.7

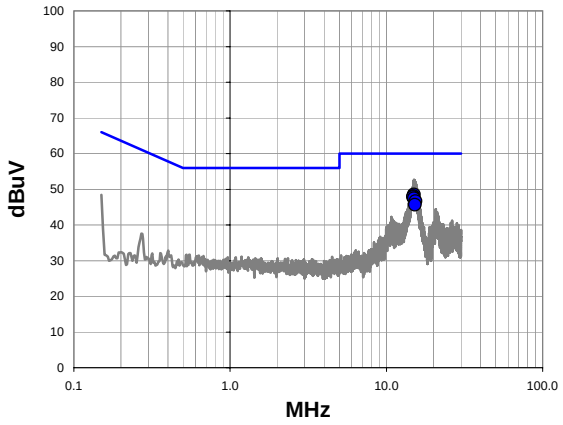
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	MASI0095	**Date:**	04/19/12		
Project:	None	**Temperature:**	23.71 °C		
Job Site:	OC06	**Humidity:**	46.78% RH		
Serial Number:	34996 Rev C.	**Barometric Pres.:**	1011 mbar	**Tested by:**	Mark Baytan
EUT:	RAD7CA				
Configuration:	2				
Customer:	Masimo Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 802.11(a) Channel 48, 6 Mbps.				
Deviations:	None				
Comments:	Power Setting = 99. Port 1.				

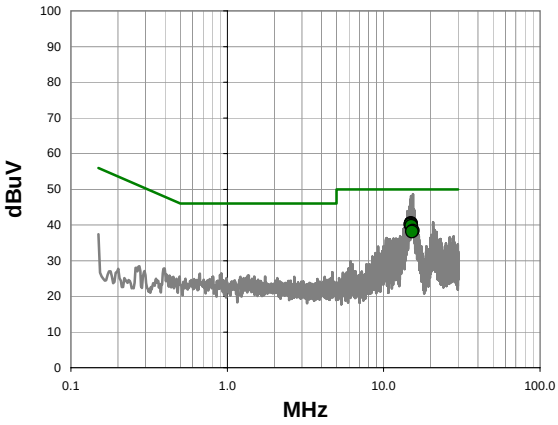
Test Specifications	**Test Method**
FCC 15.407:2011	ANSI C63.10:2009

Run #	3	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
14.997	27.9	20.6	48.5	60.0	-11.5
14.898	27.4	20.6	48.0	60.0	-12.0
14.814	27.2	20.6	47.8	60.0	-12.2
15.022	26.8	20.7	47.5	60.0	-12.5
15.405	25.9	20.7	46.6	60.0	-13.4
15.212	25.0	20.7	45.7	60.0	-14.3

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
14.997	19.9	20.6	40.5	50.0	-9.5
14.898	19.7	20.6	40.3	50.0	-9.7
14.814	19.5	20.6	40.1	50.0	-9.9
15.022	19.1	20.7	39.8	50.0	-10.2
15.405	17.7	20.7	38.4	50.0	-11.6
15.212	17.4	20.7	38.1	50.0	-11.9

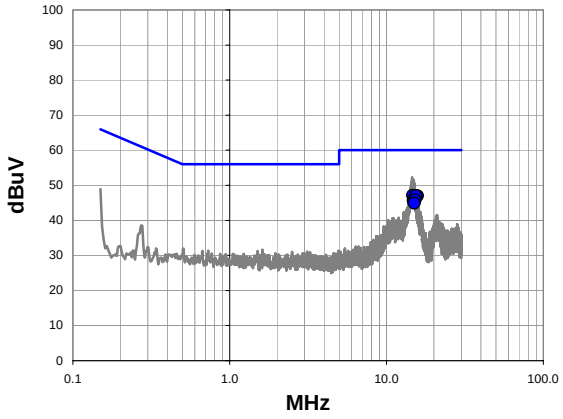
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	MASI0095	**Date:**	04/19/12		
Project:	None	**Temperature:**	23.71 °C		
Job Site:	OC06	**Humidity:**	46.78% RH		
Serial Number:	34996 Rev C.	**Barometric Pres.:**	1011 mbar	**Tested by:**	Mark Baytan
EUT:	RAD7CA				
Configuration:	2				
Customer:	Masimo Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting 802.11(a) Channel 48, 6 Mbps.				
Deviations:	None				
Comments:	Power Setting = 99. Port 1.				

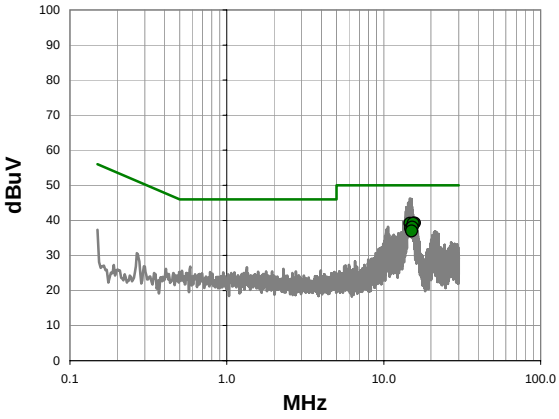
Test Specifications	**Test Method**
FCC 15.407:2011	ANSI C63.10:2009

	4	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
14.687	26.5	20.6	47.1	60.0	-12.9
14.829	25.0	20.6	45.6	60.0	-14.4
15.755	26.3	20.7	47.0	60.0	-13.0
15.401	26.3	20.7	47.0	60.0	-13.0
15.244	25.1	20.7	45.8	60.0	-14.2
15.059	24.2	20.7	44.9	60.0	-15.1

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
14.687	18.5	20.6	39.1	50.0	-10.9
14.829	17.1	20.6	37.7	50.0	-12.3
15.755	18.5	20.7	39.2	50.0	-10.8
15.401	18.4	20.7	39.1	50.0	-10.9
15.244	17.4	20.7	38.1	50.0	-11.9
15.059	16.3	20.7	37.0	50.0	-13.0